



# **A treatise on the bits of horses (chalinologia)**

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A TREATISE ON THE BITS OF HORSES. (CHALINOLOGIA.)

By BRACY CLARK, F.L.S., and Member of the Royal Institute of France.  
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ONE of the greatest evils and abuses of the horse that still seems to lie before me to treat of, is the biting; and which, considering how simple an object it is, surprises me has not been done long since: but somehow the subject of horse affairs, through the tyranny of those who are occupied with it, seems as it were beset round with some spell or enchantment, so great is the fear of the general public in intermeddling, as they would call it, in these matters; so that abuses are perpetuated before our eyes, and seen every hour of the day, yet none care to interfere. And neither is it with any mean feigning that I say I feel my hands truly feeble for the task, and the arrival of those years that do not improve a writer; yet is the task wanting, and in hoping yet fearing I engage myself in it, heartily wishing it in better hands, which it well deserves.

It is the property of ignorance to grasp at power by whatever means it can be obtained, and no sooner are they in possession of it, than they abuse it and use it tyrannically; whilst lookers on, supposing all is right, and that experience must have taught them the best methods, surrender their understandings to these miserable agents, scarcely reflecting on the atrocity of their measures: although but a very little well-directed examination and real attention to the subject would dissipate the illusion, and expose in its true colours the monstrous folly of their proceedings. A very large portion of these cruel and unmerited sufferings will be found, on examination, to proceed from the cherishing and encouraging unfounded fears and apprehensions which ought with propriety to have no existence. Fashion also has had her share in it, and not unfrequently it is the interested purposes of the makers and venders of bits, and of those who derive a profit in recommending them, and are sharing in the plunder of their masters: others again love a mystery, and think by such uncouth and complicated machinery to guard this department of knowledge from being intelligible, and so maintain their empire and secure their interests. For the true biting of the horse does not require complication or harshness, or severity, but, on the contrary, every purpose is best served and obtained by the direct contrary. Since harshness is much more likely to produce the disobedience and danger that it pretends to prevent, than to

Fig. I.

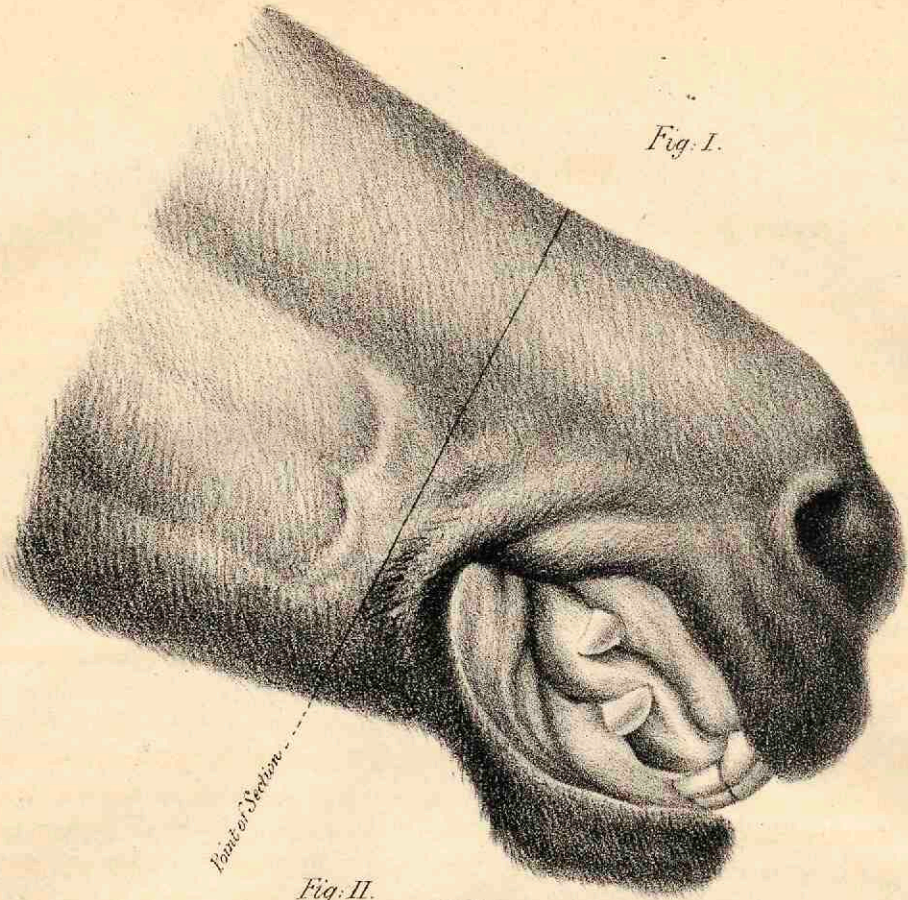
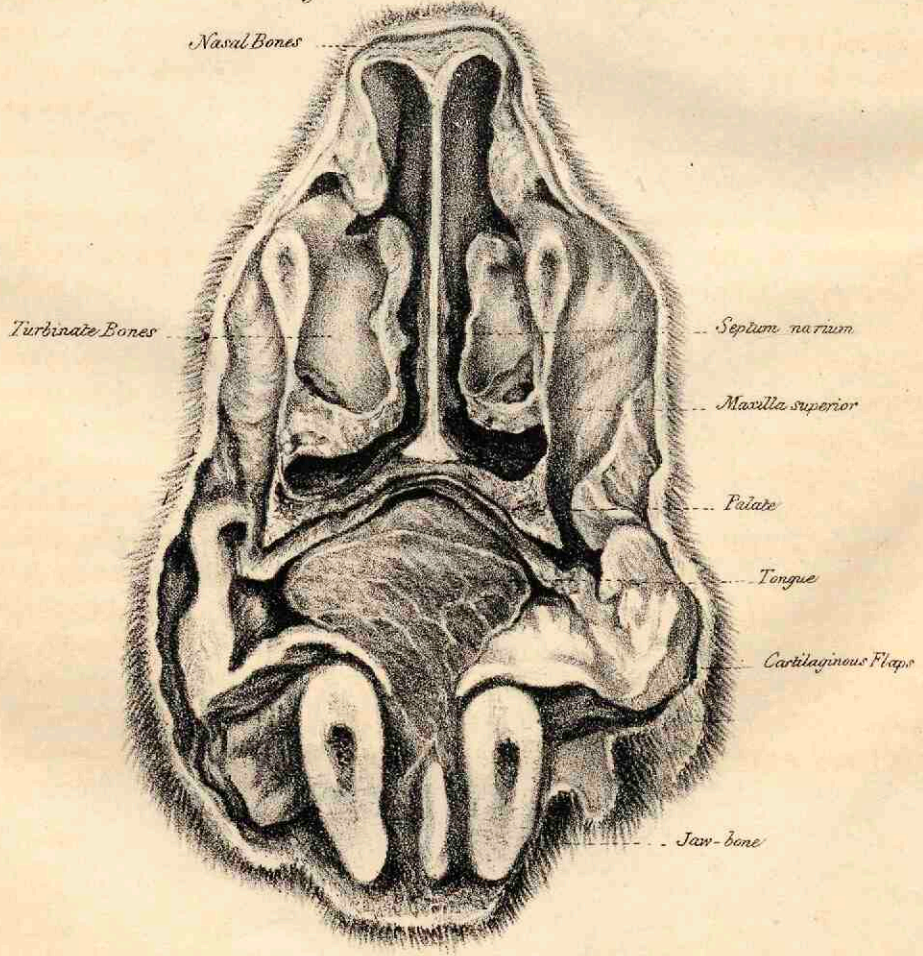


Fig. II.



A View of the form, relative magnitude, & situation of the Jaw-bone, Tongue, & Flaps, &c.

render it less accessible; making them to commit often from pain and rage, the very faults complained of, and then desire to remove by a further severity.

It may be right here just to state, preparatory to entering on the matter, that the present essay is a more extended account of the nature of bits and biting taken from an article published by us about thirty years ago in Rees's Cyclopædia, and which has served us usefully as a substratum on which to erect the present more enlarged edifice; this premised, without further preamble, we proceed to our task in first considering—

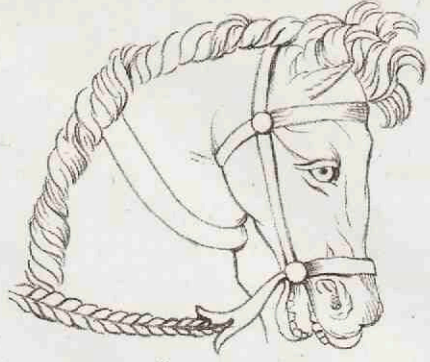
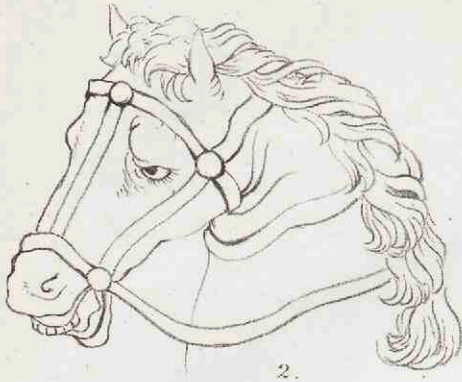
*The origin of the term Bits.* It is usual with us in England to designate whatever irons are attached to the bridle and placed in the horse's mouth for the purposes of guidance or restraint by the term *Bits*; which designation would easily convey a notion to many minds that they were so called from being bits, that is, pieces of metal purposely designed and properly suited to such offices; however natural such a conclusion might appear, such is not the case, as we shall see presently, and it is perhaps unfortunate for the animals that their real purpose was not alluded to in their name and appellation, as such might have exposed often their irrelevancy to such an office, and saved them from much suffering.

It will be pretty evident that the term *bit* is derived from the active verb *to bite*, which is rendered tolerably conclusive we believe from our finding in other languages the same term, and from the same verb: as in the Latin we have the term *morsus* from *mordere*, to bite; and in the French we have a similar term in *les mords*, evidently derived from their verb *mordre*, to bite; and conveying the same intention.

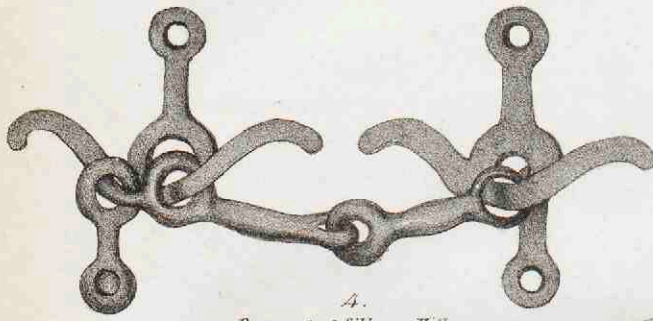
In the German again, which may be considered a dialect, together with the English, from the old Saxon, we have the word *gebiss*, also from the active verb *biesen*, to bite; strongly confirming the above remarks.

Dr. Johnson, in his Dictionary, informs us, that anciently in this country they went by the name of the *bitol*, and what exactly this additional *ol* meant was not at once evident. But on consulting Johnson's usual authorities in these Saxon matters, as Skinner's excellent *Etymologicon Linguae Anglicanae*, we discover that anciently in England a bit was called a *bitole*; and in Bailey, we find also the same expression, so that the *ol*, in Johnson, is clearly an error of the press, or an inadvertence, for *bitole*; now how we should explain this ancient term is not at once obvious; we conjecture, however, after some reflection, and are led to believe, that it will admit of a probable solution by the consideration of the application of *-le* in some other instances in our language, and by which very slight appendage or addition a verb is conveniently transformed into a noun substantive, as for example from the verb *to spit*, we obtain *spittle*; and from the verb *to gird*, we obtain *girdle*. And from the French word *bout*, we obtain the big, or *but-end* of a thing; and by the addition of *le*, we obtain *boutle* or *bottle*; and in the French language, to make it in the feminine gender, we put the double *ll*, as *la bouteille*, and this is done by the euphonious dictation of the ear only, and not from any consideration of the nature of the thing itself, and is therefore matter of taste only, which is but an uncertain rule. It is therefore probable that to our Norman ancestors it is, rather than to our Saxon, that we are indebted for this by no means unuseful term.

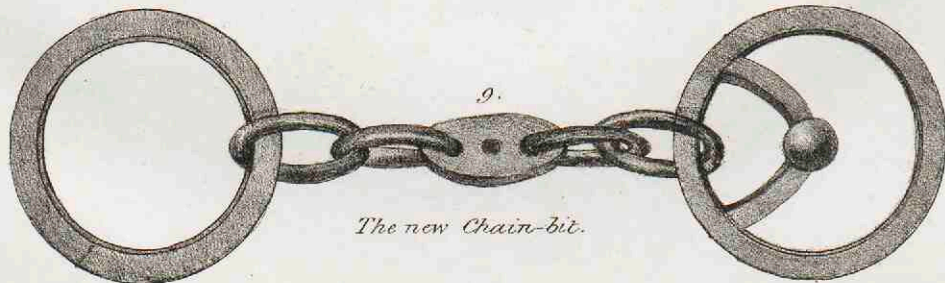
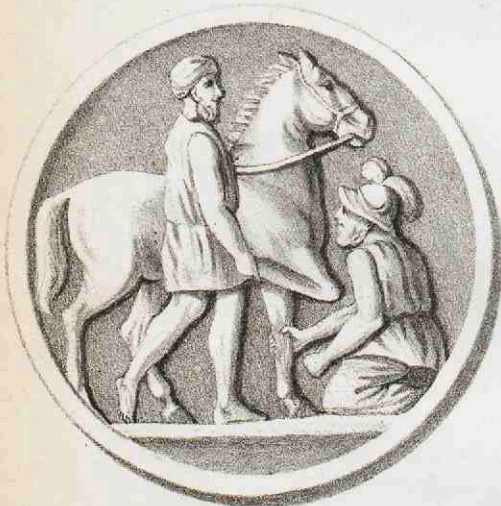
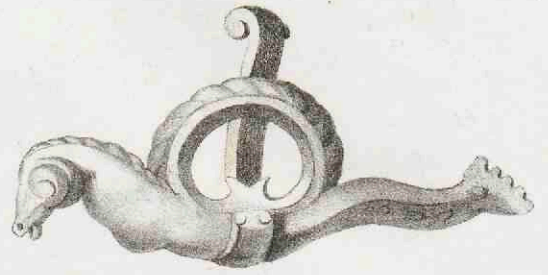
We think, indeed there is every reason to believe, that in the very first use of these imple-



Ancient Heads & Bits taken from Trojan's Column.



Dug out of Silbury Hill.



The new Chain-bit.

ments, they were called the *bites*, the *i* being pronounced long as in the verb to bite, but this in time being found inconvenient, as clashing with the term for an infliction of the teeth, it became changed into *bittle*, which was partially used and perhaps only lasted for a time, and then by that natural course which every language takes in its use, of shortening words, it became changed into *bitle*, and then into our modern appellation of *bits*; for it is from the participle past of the verb that we obtain this word, as being the thing *bit*, or *bitten* upon, or that is champed upon between the teeth, or more properly, the bars of the mouth.

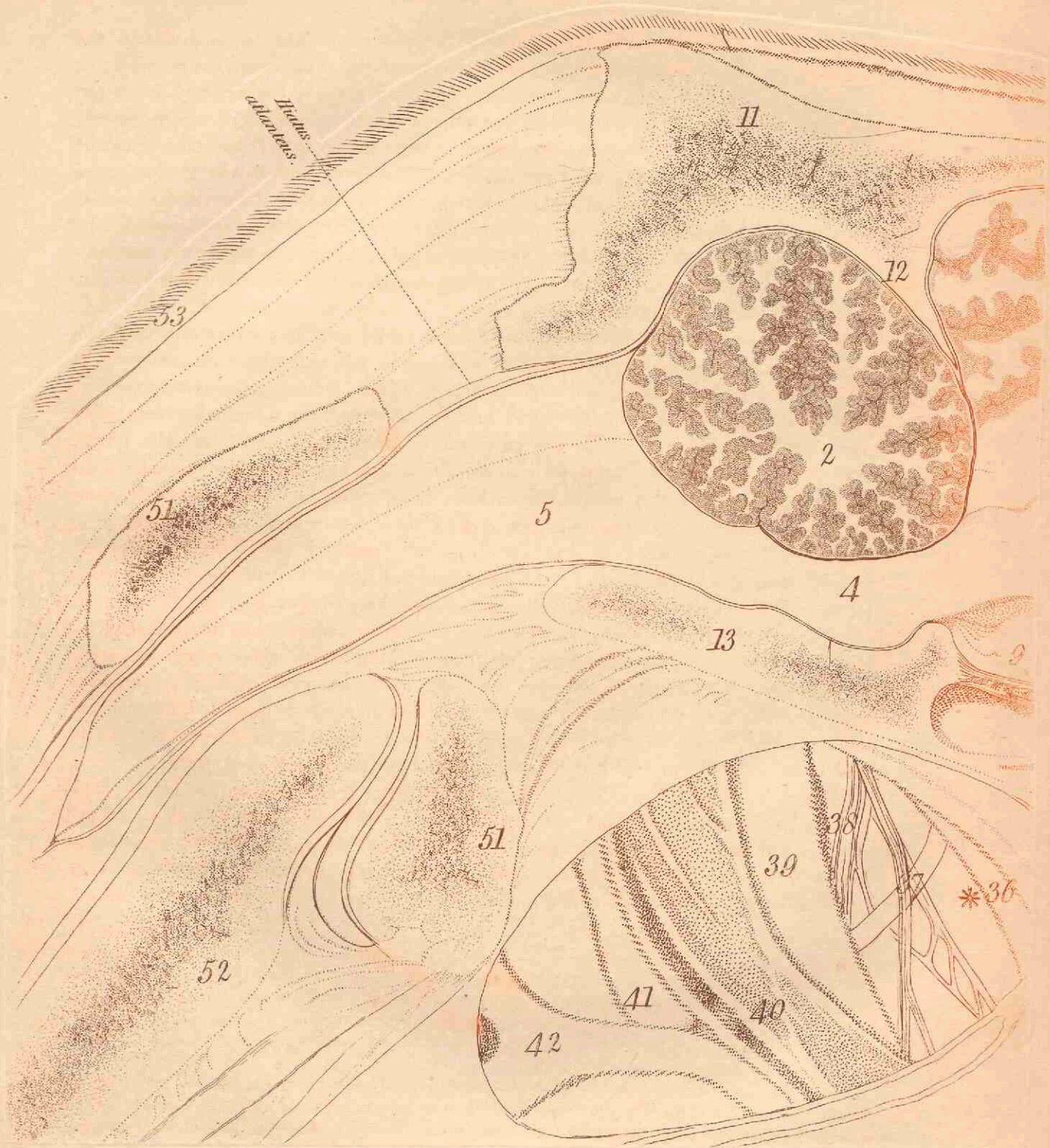
A philological friend of mine contends, that as the participle past is, *bitten*, with two *t*'s, so ought the word *bit* to be spelt with two *t*'s, instead of a single one; we, however, reply that the proper participle past is *bit*, with a single *t*, and that the word *bitten*, though now as commonly used as the other, was at first perhaps a conventional, or convenient term only to relieve in many cases, which it handsomely does, the sharp abruptness of the other; therefore, we see all the best and most classic writers adopt the single *t* in the spelling. And we think also that the ancient term *bitle*, as being more distinctive, is far preferable to the modern more ambiguous term, *bits*.

In placing these irons in the mouth of the horse, and communicating them to the hand by the reins, we establish, or ought at least to establish, a sort of language of communication with the animal, and which, when adroitly and suitably applied, and used well, would bear no mean analogy to such, but unfortunately however for the worthy animal, this language of the bits at present, is possessing but too often, not the *douceur* or softness of the Italian, but is, in reality, a very crack-jaw and worse language than any of the harshest dialects of Sclavonia; which, had their name borne some correspondence to their real uses and intentions, could not hardly have been so eminently the case, for it is inconceivable to what extent the grossness and violence of this machinery is carried, and exists at this day.

For we see irons of the most preposterous figures and fashions thrust into their tender mouths under the name of bits, and where any just definition of a bit is wanting, anything becomes a bit which they please to call so; complexity is often preferred to simplicity, where simplicity would better answer the purpose, and, unfortunately, too many interests are involved in pursuing such a course, for well is it known to every intelligent and experienced horseman, that gentle measures, and perseverance in them, will avail more and produce better effects than harsh or severe ones.

How often, indeed, are their sufferings, and the eloquent expression of those sufferings by various movements of the head, disregarded, till obedience and patient suffering can no longer endure such torture, and disobedience and mischief becomes the fruit of their use; often, indeed, the pitiful boon is denied them of expressing their sufferings, by being strapped up and strapped down, and strapped sideways, and strapped in all directions, that they shall not even relieve themselves, or swerve from what is most distressing and annoying to them, till at last, maddened beyond all bearing and endurance they break through every restraint, and occasion those very disasters of which they are accused, and as not being under sufficient control; and further and still more abominable torture is then proposed for them. And all this to an animal that is well known to be, if duly used and judiciously brought to his task, generally speaking, the most docile and willing of all slaves, to serve us by night and by day; and is ever ready at the command

*Heavis  
adventus.*



of his master to rush even into the midst of peril and danger, and to forfeit his life for him, if such be his will and pleasure.

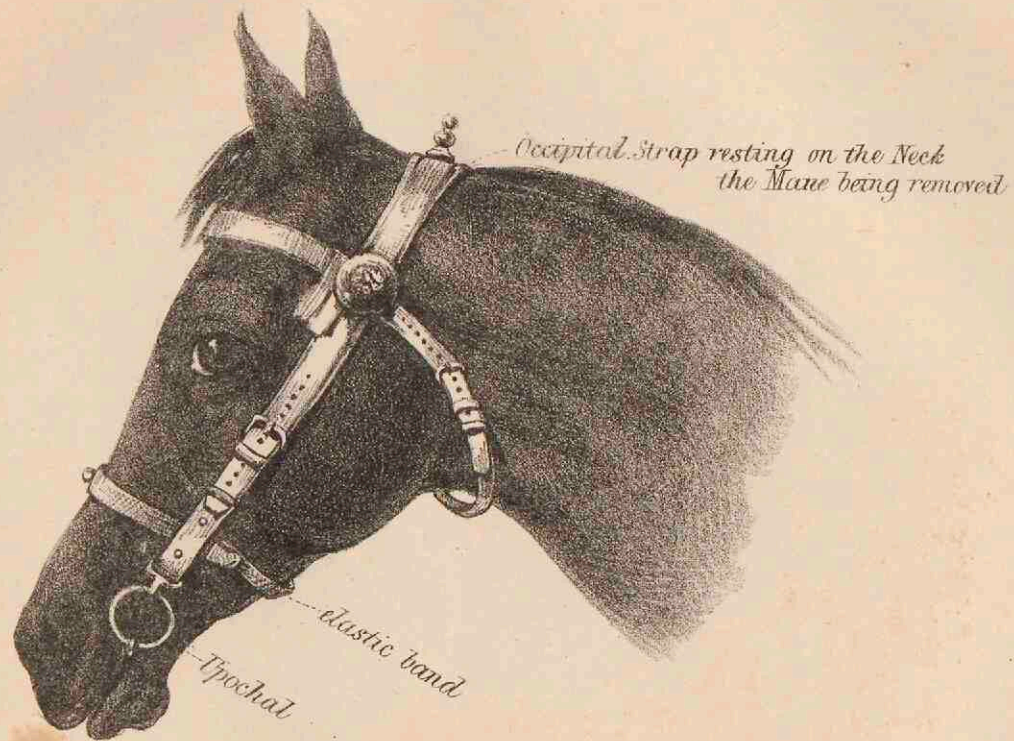
Whilst some horses carry their heads low, with their noses almost to their breasts, trying thus to avoid the crushing operation of the lever-bits upon their bars, others, on the contrary, are carrying their heads aloft in the air, with their eyes and eyeballs staring and straining as with affright and pain, and as though appealing to heaven against such unmerited cruelty and oppression; and although thus expressing their bitter anguish, are they unattended to, or, perhaps, only by the cant remark that they *must get used to it*, as if such were possible. And use and custom has but too much reconciled us to these objects to see and feel them in their true enormity, or our feelings would certainly not be so seared against them, but animate us to some exertion in their favour. And often, if there be any swerving from the agony, or a disposition to express their uneasiness in any way, the thong severely applied is the unanswerable argument resorted to overcome it, adding to suffering the most cruel of inflictions. Can we wonder, then, that sometimes, infuriated beyond all bearing at such merciless proceedings, they should lose all restraint and patience, and do mischief. We wish not unnecessarily to over-colour the picture, for that indeed it would be difficult to do, but to rouse if possible public attention to these glaring cruelties and follies, and, without displaying some of its horrors, we should be doing but a languid and very imperfect justice to the real state of the case.

The more or less sharpness of the horse's jaw-bone or bars of the mouth, or of occasional inequality in the height of these, for which see *Frontispiece*, the different thickness or thinness and degrees of sensation in the membranes covering these parts, will occasion a difference of suffering in the various individuals receiving them, yet frequently it is with the most obtuse as with the most acutely sensitive subjects that the same bits are used; for in a general way, the care of biting the horse, and of applying these instruments, is left entirely to those who know but little of the distinction between the one kind of mouth and the other.

Now whatever may be said of individual instances of rebellious horses to justify this, there can be no doubt that by far the larger share of them, as we have before stated, are most gentle, and therefore is this suffering a gratuitous and unnecessary infliction, and cannot fairly be brought in excuse or extenuation of such conduct. Neither can it be said that the animal is too sensitive of pain, for we have often seen severe pain inflicted on him where operations have been necessary, and his bearing it with wonderful fortitude; we have also frequently seen nails driven so near the flesh in his feet as to fester, and produce pus or matter, without its being known to his driver that anything had affected him; so that they are courageous in bearing pain, and do not flinch at a little, is most certain.

The sporting man formerly, and the hunting man and the traveller also, used to deride as preposterous and unjockey-like these unwieldy long machines, or lever-bits, both as unfair and betokening ignorance, cowardice, or maladresse, in the person using them, and to ride "*hard and sharp*," as it was called, was left alone to the butchers and their blue-frocked apprentices; but now the custom has become almost general, and even from examples in the fashionable world, encouraged by some of our courtly foreigners of distinction who have honoured us with their visits, by whom has this practice been greatly encouraged and augmented.





*Occipital Strap resting on the Neck  
the Mane being removed*

*elastic band*

*Occipital*

MY MARE BITTED ACCORDING TO MY ARRANGEMENT.

And so careful were our forefathers of preserving the freshness of the horse's mouth, with their riding horses, that the stable boys and grooms had their watering-bits allowed them for all purposes of exercising and leading out of the stable, in order that their rude and clumsy hands and little skill should not in any manner harden and spoil the horse's mouth; now so little jealousy exists on that head, that lads of every description belonging to a stable are seen going about with these wrenching-irons in the mouths of their horses, as commonly as with any other kind of bits. And the taste in these matters in Europe has actually declined and gone back of late years, instead of making advances with the advancing knowledge of other arts. The poor asses also, we may remark, are at this time not exempted, but to be in the fashion, are also tormented with these horrid irons.

Having a little exposed, in general terms, the onus to be removed, or the dilemma of the subject, we may now apply our views to a more distinct consideration of the actual apparatus inflicting it; but, before we do this, we could desire to add to the foregoing picture a few words on another instrument of torture of the bit kind that modern ingenuity has invented, and which has been successively increasing in severity from its first introduction, till it has become an annoyance to the worthy animal of a character the most atrocious, being a rein that no feeling of the hand is to guide, but an insensible fixed body, acting with any degree of tension and force against the bars of the mouth, that ignorance, whim, or cruelty may fancy to be necessary, crushing also the parts of the throat and of the windpipe, injuring and destroying them often, and mocking afterwards their miserable condition by the odious terms of pipers and roarers, &c. It is the *bearing rein* we mean; so that not only is the poor animal to be upheld by severity of biting with the irons of the hand, but he is also to be teased by a mechanical force of unknown power and of no feeling at all, which is rammed with the other irons into his mouth, and then receives this unmeaning name.

This detestable scheme was unknown till of late years, and who had the honour of inventing it we know not, or even the nation whence it came, but we recollect forty years ago it was but in little use to what it is at present; and in France at that period so rare was it, that in a conversation I had with some of the professors of the Charenton school, it was with difficulty I could make them understand the thing I meant, but which at last they made out to be their *fausse rein*. It is now in Paris with the cab horses more severely used than in any other country, and with an almost total disregard of the feelings of the animal; and, though arming myself with all the philosophy I was able, to restrain too much feeling, I was at times shocked almost beyond all patience to see the abominable misuse of this villanous instrument; in Germany also it was in use in a way that made one shudder. I often in passing along had to exclaim, How is this excellent creature, who is so full of feeling, and ever willing to serve and to aid us, used by those called Christians, in defiance of all the mild precepts of that religion they pretend to, when his goodness and worth can pierce the heart of the untaught Arab, who would disdain for any consideration of gain thus to rend and abuse him. No mercy, indeed, is shown him here where the smallest interest, or even imagined interest, is apprehended to be concerned in his abuse!

This foul and unfair instrument, so easily abused, since no guiding hand testifies the pressure

of it, is inflicting pain, as I have said, with an unknown severity, except to the suffering animal himself, and is often acting in exact opposition to the other irons which the hand guides, and contains the reins of. And so usual has it become, and so cruelly misused, that it is, if possible, a greater evil than the whip, and the more grating because it passes unseen, and hardly obtains the least notice or commiseration. To what heads and hands are these measures generally left! And how do these men act, when the smallest real or even merely imagined pretence exists for these practices.

I know very well the want of safety in their horse's going will be urged as a pretence for it; but why not first rectify the shoeing, the cause of all this, and then see if it be necessary; and which now can be done on sure principles and without difficulty, as hundreds can testify.

And on this occasion I cannot forbear recording, that when in Germany, where I wrote many parts of this essay, I continually saw not only the most gross and wanton practices of cruelty with these lever-bits, but another most shameful practice also prevailing there, that of tying down the horse's head in draft service, with a cord or thong nearly to his breast, by a strap which passed from the bits in his mouth to a hook or ring at the lower part of the collar! being the very contrary in its direction to the bearing rein, but which it miserably represented in operation, but is only absurdly placed underneath instead of over the neck: this wretched cord is sometimes left of not more than seven or eight inches in length! By this measure he is not only severely punished all the time he is at work, but the use of his head and neck, which are eminently serviceable to him in his draught, is taken from him. Some hundreds of horses have I seen thus treated in that country, and generally among the lowest of the low, who were occupied in the laborious use of these animals, whose favorite plan it appeared to be, and obtained no sort of rebuke or reprehension. How can it be that the lowest and the most uneducated and ignorant of our species should be thus allowed ignorantly to tamper with, injure, and outrage the feelings of so noble a creature, in the very act of serving them! For it is a mere useless and gratuitous infliction upon an animal capable of the most generous affections, and fully as sensible of the wrongs that are done him as those inflicting them. A horse with his head held down by the bearing rein cannot move his neck to assist forward the fore limb, into which is inserted one of the most powerful muscles of the neck; and we may often see, after he has been so gagged and treated, that he is scourged severely because he does not go freely! In the gallop we may see, more particularly, how the head being thrown up and the neck stretched out, the fore legs are advanced forward by the exertion of this muscle, and the very great utility, advantage, and assistance they derive from its use.

And as to vices, it is by the concurrent opinion of the truly experienced in these matters admitted generally that patient measures and stratagem will do more in correcting them than violence and brutal usage, in nine cases out of ten; and this we may confirm ourselves from a long life spent among horses, and in observing them closely. In the year 1810, to relieve myself from severer studies, I took to breaking-in horses, in order to observe their tempers and conduct on such occasions, and their dispositions in respect to vice. And I found so gentle and temperate were they, that is if they have not been ill-used in bringing up, that they may be said to be, in a general way, nine-tenths formed by nature for the tasks required of them.

If laws are thought expedient to prevent cruelty to animals, why not also for biting him unfairly, which can be made one of the most cruel of all the modes of ill treatment.

We coax the horse to admit the bits, and hold out fair promises to him not to hurt him if he will but comply and be obedient; the horse agrees to the bargain and keeps faith, but how is it with the man—he violates it in every atrocious way! Although in a general way his docility is such that it almost outstrips our requirements, yet is he gagged in all directions, and treated worse than could be treated the most ferocious beast we can imagine! as though he of all others particularly deserved persecution!

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We now quit these preliminary remarks, in order to consider the bits themselves, and also the true principles of the art of biting.

And in horse affairs, as in many other arts, I believe we shall do best to condescend to go back for models to ages long past; and perhaps in old Xenophon we shall find as good general directions in these simple matters as are to be found any where, or have ever since been penned; and who lived at the very remote period of about four hundred years before the Christian era commenced, and who was not only one of the first, but one of the best horsemen that the world ever saw. And on the basis which he laid down we shall erect our first principles, and maintain, with him, that in a general way the animal is docile and easily instructed; and, if this be allowed then is his biting easy, and any undue severity generally unnecessary. It is true there may be, and are exceptions to this rule, but they are so unfrequent that they must not be allowed to subvert or disturb its application, but such must be treated apart, and considered alone and by themselves. All the great and the good engaged in these pursuits have testified to the soundness of this writer; and the valiant Scipio modestly acknowledged that it was to Xenophon he owed all his principles of managing cavalry, and his wonderful successes in this way; and so well did Xenophon describe the manner of forming an efficient cavalry and of using them, that no one in Greece or Rome ever afterwards attempted to improve upon what he had written, or even presumed to touch the subject.

And who shall dispute the truth with us, that these things were better understood two thousand years ago than they are at present, or that Pagans and Infidels were more lenient in their measures with horses than we Christians of the present day. These difficulties and cruelties, it must be admitted, have grown in a great measure out of the destruction of causeways, and the adoption of iron rings for shoes to horses' feet of enormous rigidity and weight, which deteriorate the feet and punish the animal, and alter the whole system of the horse, humanity and all, almost rendering any desires that way unavailing and impracticable!

My feeble aid, therefore, has been extended to the consideration of these objects of bits, which after shoeing and whipping, is the worst torture the horse has now to endure; and we have been the more led to investigate the matter, since we were from much observation well assured that nearly all this suffering was gratuitous and unnecessary, and might be removed and laid aside by the intelligent use of the animal, and without our losing any share, but rather extending his beneficial services.

For myself, I could wish that my experience had been greater than it has been, my attention having been devoted to more difficult branches of the art in its present degraded state, in respect to the feet and shoeing, yet did I sometimes, in desire of better knowledge of the animal, as well as for relaxation from severer pursuits, as I have stated, turn my attention to this branch of the science, and ventured to break-in young horses with my own hands, in order to see and observe what degree of resistance they were in a general way disposed to make, and the conduct of them in this respect; and I found the difficulties had been much magnified by interested persons, to enhance the value of their services in this department. Patience and forbearance are leading requisites in it, and perhaps at times some little address, but, except on very rare occasions, nothing, I believe, that should justify much punishment, or the resorting to a cruel severity. It is indeed wonderful that so spirited, highly-gifted, and powerful an animal should so easily compound for all his natural rights, for such, I presume, every animal has, and yield so readily an abject servility to man, and the loss of liberty, and almost every natural desire.

May we not define the true art of biting to be the applying to the mouth of the horse such mouth-pieces and reins as shall be sufficient for the necessary guidance of the animal, and for adequate restraint when required, and that these be of the mildest kind consistently with the accomplishment of these purposes.

Laying the above down as a fundamental principle, we proceed to consider the proper mouth-pieces for the horse. We are tempted, however, from matter which we have collected years ago, to precede the commencement of these mere mechanical remarks by a very brief historical retrospective notice of the progress of this art of biting from its earliest period.

The Greeks acknowledge, as do also the Romans, that Ericthonius the Egyptian, first taught them to break-in the horse for the chariot: "Primus Ericthonius, &c." (see History of the advancement of Horse Knowledge, p. 5, London, 1824); and some antiquaries, versed in the Coptic or Egyptian language, have advanced proof of the word Ericthonius being Coptic, and signified merely the horse-breaker, from *ere*, *facere*, and *ictio*,\* horse, and that this general designation of a profession being personified by the Greeks, made their Ericthonius; (see Smidt's Dissert. in the Archeolog. Trans. ;) and which derivation we think is very likely to be true. And the Roman Eridanus, or Eridamus seems to have been the same personage, or one holding a similar office, probably from *Eri*, the same prefix, and *domo-are*, to make tame. Thus the horses of Phaeton after his unfortunate expedition are turned over to Eridanus, "to wash their foaming mouths," and to put them in order again.

" Quem procul a patriâ diverso maximus orbe  
Excipit Eridanus; spumantiaque abluit ora."

*Ovid in Phaeton.*

Next to him, and who was a real personage, came Simon, a man of Athens, spoken of and quoted by Xenophon, and did great achievements in this way. With his celebrated mares he won the prize more than once at the Olympic games, and left behind him in writing his precepts, but which writings are now lost, which however were used and quoted by Xenophon, adding

\* Hence, perhaps, *icquo*, *icquus*, and *equus*.

to them what was necessary to perfect the art. A large mound, after the manner of the Greeks, was formed round the bodies of these mares at their death, as a memorial of their great achievements, and a statue or pillar with a bronze horse was erected to Simon in the Eleusinium, with his directions attached to it, enclosed, as Xenophon tells us, in the base; and Xenophon perfecting what Simon had begun in the art, little or nothing was afterwards added to their excellent instructions by either Greek or Roman, or were their precepts indeed ever called in question by these nations.

Xenophon everywhere inculcates the most gentle measures to be pursued with horses, forbidding any man in anger to approach them even. These are his words: "*Unum hoc præceptum ad equos, unus hic mos optimus est; ut equus iracundè nunquam tractetur. Nam ira nihil providet, sepe numero designat ea, quorum pœnitere necesse sit;*" (Leuncl. Ed. Xenoph. p. 1150:) words that should be inscribed in conspicuous characters over the door of every school for horses. The originals are: "Το δὲ μὴ ποτὲ σὺν ὀργῇ τῷ ἵππῳ προσφρασεσθαι, ἐν τούτῳ καὶ δίδαγμα καὶ ἔθισμα πρὸς ἵππον ἀριστον. ἀπρονοητον γὰρ ἡ ὀργή, ὡστε πολλακίς ἐξεργάζεται ὡν μεταμελεῖν ἀνάγκη." Xenophon Ed. Leuncl. p. 941.

He recommends a bit having the flexibility of a chain, and probably the bit they used was not very different from one. What would this great captain of horsemen think or say, if he arose from the dead, and got a sight by chance of a modern equestrian in our parks of pleasure, belabouring a horse's jaws by two iron levers of nearly a foot long, and with a distorted iron arch for a mouth-piece, and an iron chain under his chin as a fulcrum, to give it more effect against his bars? Surely his indignation would be great, and he would consider knowledge in these matters to have vastly retrograded since he left the earth, and inhumanity and cruelty to have much extended their empire. And the more so, as the horses of the Eastern world which he had to contend with were vastly more vigorous and fiery than our more temperate European ones. And yet in their achievements in war, as in all the other uses of the horse, have they perhaps never since been surpassed, if equalled.

Indeed, two nations of noble horsemen, dexterous in drawing the bow and managing their steeds, viz. the Numidians and the Parthians, appear to have never soiled or debased their horses' mouths with the iron, yet managed their fiery coursers with pre-eminent skill and address. What proof this of their intelligence, and of the extreme docility of their animals, and of the perfection, *gentil* perfection, they had arrived at.

We learn from the writings of Xenophon, that the Greeks had, in his time, an instrument in use which they sometimes employed in breaking-in their horses, and which appears not now to be used or at all understood; it was called by them the *πέδη*, *Pede*, and was translated *Pedica*, in Latin, or *the Shackle*. Exactly of what nature this instrument might have been we know not, nor would it be easy even to conjecture, from such insufficient data as he has left us, even whether it was used in the mouth or to the feet, though we fully believe the former. To provoke others more skilled in these matters to the consideration and discussion rather than to clear up the difficulty of it, we shall here point out more than one passage where it is mentioned by him, and make some remarks upon it, as it is pity that any hint from such a quarter, should be lost on a department of horse-knowledge, which has been so neglected in these days, and deficient of intelligent instruction.

In the early part of his work on Horsemanship, in his excellent advice respecting the purchase of a horse, and the circumspection necessary in this important affair, he alludes to the use of the *pede*; and afterwards we find him, in a subsequent chapter, in a more particular manner to be speaking of, and commending it. "You must also consider," says he, "if, when mounted, he will go away from the horses he is with, or if he will run away with you on seeing other horses at a distance, and go to them. There are also other horses which, from bad education, run home of their own accord; and others also, with one side of the mouth disobedient, which is to be corrected by what is called the *Pede*, but still more so by changing the equitation." By this phrase is probably meant exercise with frequent turnings; for the passage itself seems to be somewhat briefly and obscurely worded, for changing the equitation with us would mean changing the whole manner or system of riding.

The Latin translator has it, "*Sunt etiam qui propter educationem malam ex ipsis agitationibus se fugâ domum recipiunt. Ex oris altera parte duriores prodit (prodest?) equitatio quæ pedica nominatur; ac multo magis ipsa equitationis mutatio. Nam plerique sessorem auferre non conantur, nisi simul et ab improbiore maxillâ juventur, et impetus ipse domum tendat.*" P. 936, ed. cit.

In the next passage where this instrument is mentioned, which describes it more particularly, we cite only that part of it in the original words where the name *pede* occurs, that any of our readers, versed in Greek, may have the opportunity of considering it;\* we shall however give at greater length the Latin translation, as being more generally understood, and as well expressing the general sense and context of the passage. The following we believe to be, as nearly as we can give it, the sense of the original, for he is treating, and rather copiously, on the best manner of turning and wheeling a horse about adroitly, and on both sides.

"*And since it shall be more approved that the beginning should be made from the left, so it is best that he should begin there; if the horse, after being mounted, turns to the right, he should be threatened with the wand or switch, held up as a signal to him. However if he will take to the left, let him begin there, and after he has turned to the left, make then the beginning of the inflexion to the right. For a horse is accustomed, if turned to the right to keep to the right, and if to the left, the left. We however extol that exercising of the horse which is called the *πειδη*, *pede*; for it accustoms a horse to turn on either side the jaw. And it is good to change the*

\* "Και γὰρ πεφυκεν ὁ ἵππος εἰς μὲν τὰ δεξιά στρεφομενος, τοῖς δεξιοῖς ἀφηγεῖσθαι εἰς εὐωνύμα δὲ, τοῖς ἀριστεροῖς. ἵππασίαν δὲ ἐπαινοδὴν τὴν *πειδὴν* καλουμένην ἐπ' ἀμφοτέρω γὰρ τὰς γνάθοις στρεφόμεθα ἐθίζει. Καὶ τὸ μεταβαλλεῖσθαι δὲ τὴν ἵππασίαν ἀγαθόν, ἵνα ἀμφοτέραι αἱ γνάθοι. Καθ' ἑκάτερον τῆς ἵππασίας ἰσάζονται. Ἐπαινοδὴν δὲ καὶ τὴν ἑτερομήκη *πειδὴν* μάλλον τῆς κυκλοτεροῦς ἥδιον μὲν γὰρ οὕτως εὐαστρεφοῖτο ὁ ἵππος, ἤδη πληρῆς ὦν τοῦ εὐθίου, καὶ τὸ, τὸ ὀρθοδρομεῖν καὶ τὸ ἀποκαμπτεῖν ἀμὰ μελετῶν ἐν," &c.

"Quam enim magis probetur, ut a sinistris initium fiat; ita maxime hinc incipiet, si equo post conscensionem, ad dextram currente, signum ei virga dederit. Quippe dum sinistrum sumere vult, hinc incipiet; et ubi ad sinistram se convertit, tunc et inflexionis initium facit: Solet enim equus si convertatur ad dextram, dextris insistere; si ad levam sinistris. Eam vero laudamus equorum agitationem, quæ *pedicæ* nomen habet; nam adsuefacit equos, ut ab utraque maxillarum parte convertantur. Et mutare motum equi bonum est, ut utraque agitationis ratione similes sibi maxillæ fiant ambæ. Laudamus et *pedicam* altera parte longiorem potius quam rotundam, sic enim libentius convertetur equus, jam recti cursus satur; et simul ad cursum rectum et ad inflexionem exercebitur. Etiam inhibendi sunt in reflexionibus Equi. Nec enim vel facile vel tuto fieri potest ut equus in cursu citatiore paullo momento se reflectat," &c. *Xenoph. Ed. Leunclav.* p. 943.

motion of the horse to either side, that by working on both sides they may become equally easy. We approve that *pede*, with one side longer rather than one perfectly round: for with it will the horse more freely be turned, and when tired with one course, he is best inflected or changed to a straight course again. Also horses are to be tried in wheeling about; but this cannot be easily or safely done in a moment, when the horse is going fast." Xenoph. ed. cit. p. 943.

Having now afforded what information we can on this instrument used by the Greeks, in order that it may undergo the investigation and consideration which it appears to deserve, for we think any hint from so distinguished a master of the art is worth recording, so we shall now, if we may be allowed in our little experience to make a beginning in this way, to form some conjecture of the nature of it, in order to encourage others to the enquiry, rather than as solving the difficulty, we should say that we believe it to have been simply a ring that went loosely round or embraced the lower jaw, and which reached to the rider's hand by a cord or string, or the assistant's by a longing rein, and, from the expression "επαινοδμην δε και την ετερομηκη πεδην μαλλον της κυκλοτερους," viz. "we approve the *pede* that is made unequal, or with one side longer rather than those made round." We should be led to consider it as generally or as having been most often made perfectly circular or round, but that he preferred one lengthened on one side, which figure, we conceive, might bring it to that, perhaps, of an ovoid, or oval shape; the longer side or narrower end being used possibly for the attachment of the string, to which it would communicate a sort of purchase, and by twitching him with it at the moment he ought to begin the inflexion, a more decided impression would be produced in the direction it was employed. Perhaps this object, now it is once announced, may have light thrown upon it from other quarters, and finally be cleared up hereafter, that we shall desist from farther consideration of it.\*

Xenophon, than whom perhaps no writer on equitation ranks higher, expressly lays it down as a fundamental principle that the bit which he calls (χαλινος) *chalinus*, should be formed of easy supple joints, so that its effect should resemble that of a chain, and with rather largish knobs to it, to make it the less severe probably by its more extensive bearing upon the parts. Such was the bit he used and recommended for all general purposes; but he further says, if severity be intended or necessary, "then these knobs are to be flattened and studded with rough prominent points." And although this severer bit be described by him fully enough for a common artificer who had never seen one to make it by, yet this rougher instrument obtains from him no properly distinctive name otherwise than as being σκληρος, or hard, and the other μαλακος, or soft, and it is six centuries after that we find by the writings of Julius Pollux and Hesychius, that these Greeks gave to this hard bit the term λυκος, *lukos*, and λυπος, *lypos*, after the Roman *lupatum*, or *wolf-bit*, in imitation perhaps of their Roman masters. Two centuries after this we find Vegetius, according to Sheffer's account at least, describing these rough points as two teeth proceeding from one iron stem, "*Ferrum in modo forficis dentatum*," or as being like the two points of an opening pair of scissors.

In a former edition of this work, of which I published but a few copies, I was led into the

\* Governor Pownall, and so did Beringer, consider this *pede* to have been a mere chain, see *Horsemanship*, p. 229, but from this latter part of the description, which they do not appear to have noticed, this would appear improbable, or rather impossible.



error of supposing, that as the ancients knew nothing of our modern curb bit, it was impossible they could have had any use for a chain about the chin: in this however I since find, from further research, I was mistaken; for, on referring to Julius Pollux, I discovered that they really employed a chain about the chin with their snaffles; the words of this writer place it beyond any doubt, they are as follows, το δε περί το γενειον ψελλιον το γε εις το στομα εμβαλλομενον χαλινος. Julius Pollux, Onomasticon, Ed. Amstelod. 1626, p. 100; signifying, as I apprehend, "the psellion passing round the chin is extending from the inserted mouth-piece to either side of it," which I conceive to be quite decisive as to the fact, and is fully confirmed again by recurring to the description of Xenophon; yet as the curbed bit was entirely unknown to these nations, we were quite at a loss to imagine of what service could be this chain, on which we now propose to hazard a few remarks, the circumstance before, having that we know of, never obtained any attention or consideration at least. One of the offices to which it was applied was probably that of carrying the link or hook to which they attached their *ρυταγωγεις*, *rutagogeus*, *lorum ductorium*, or conducting rein, perhaps at about its middle part, instead of applying it to the ring at the sides. Next, as they had not the slightest knowledge of our cross-pieces, they appear to have used it to prevent the bits from being drawn through the mouth, which was probably its chief office; and it would not indifferently fulfil such a purpose. Again this chain would have had the useful effect in case of the rider dismounting and leading his horse, of keeping the bits steady in the mouth, and of preventing the bit from leaving the tongue and lower jaw and striking against the roof of the palate, which is a great offence to a horse, as being an unusual and novel impression, and one of the causes which will occasion him often to run back if rudely pulled, as those much used to leading horses will have often observed. And lastly this chain would enforce more strongly the application of the sharp points of the *lupatum* to the tongue, if such were employed.

It is well understood that Julius Pollux flourished in the second century, in the days of the Emperor Commodus, to whom he dedicated his several books. He called this chain *ψελλιον*, *psellion*, which Xenophon six centuries before had given the broader name *ψαλιον* to. Xenophon orders previous to mounting, that the guide rein, *rutagoge*, be taken out of the *psalion*, which was probably a loop or hook of wire belonging to the chain, but not the chain itself; and *psalion* would rather signify, we apprehend, a wire or string than a chain, witness the Psalms of David, called so from the strings of his harp, and *psallo* signifying to play on a stringed instrument and singing to it at the same time, indeed the chain might have been originally but a simple chord, stretched across the chin to steady the bits in the mouth, when it obtained this name.

It is also not clear whether his *rutagoge* was a separate rein or not, but which we believe fully to have been the case, though his English translators have not made the distinction. We suppose it very similar to the piquet rein of the modern soldier, for leading by when he dismounts, or for fastening his horse to a post or chord in the open field or near the camp. On some occasions however, it is possible to make a pretty good guide rein, by a manœuvre we often see practised by the grooms of drawing the rein of the off side through the ring of the near side, thus getting both reins to the same side, when they become much more convenient for leading by.

We may here, also, in speaking of the reins, just remark, that they were very anciently called, as we see in Xenophon, *ταινια*, *tainia*, and *τηνια*, *tenia*, expressive, perhaps, of their being like

ribbons or flat fillets of tape, or of flat strips of thong or leather, but in process of time it seems the *t* got omitted, and then they were called simply the *νῖα, enia*, and in this state gave rise to the splendid name of Heniochus, the *Charioteer*, one who governed by the *νῖα, enia*, or reins, and *ἔχω, habeo*, the aspirate H being added to strengthen the sound, or rather the eta *η* expressed in capitals, being represented by an H, naturally supplied the letter; and hence perhaps the Latin word *habena* may have had its origin from *enia, ἔνια*, and *habeo*, conjoined.

We see, however, in a passage of Xenophon after the preceding, that he recommends the rider not to lead by the common reins, which clearly indicates a separate rein to have been employed.

The lexicographers appear to have been a little at fault in explaining the term *upochalynidia*, found in the writings of Xenophon, and have interpreted it by "*ima pars fræni*," which we consider evasive, as not pointing to any individual part, and not true, at least if our conjectures be well founded, as to its being the lowest part of the bit. We apprehend, after duly considering their bits, that there can be little doubt the part they intended to denote by this appellation was the ring at the end of the bits on either side of the mouth-piece, which is common to every kind of bit, and highly necessary for the suspension of the bits in the mouth, and for receiving the reins also, which will explain every instance of its occurrence, we believe, in the ancient writings. The *υπο* appears here to have reference to its being situated at the extreme ends of the bit or mouth-piece, rather than to its being placed in the lowest part, "*ima pars fræni*." Camerarius appears to have first led the way into this error.

I ought not to omit to mention here, that the German translators of Pollux have constantly translated *υποχαλυνidia, upochalynidia*, by *orea*, or mouth-piece; a worse error, if possible, than the other "*ima pars fræni*:" and *φιμωσ* they also translate by *lupatum*; what it exactly was we have yet to learn, but believe an iron muzzle would more nearly meet the description in their accounts of it than any thing else we know of, but a *lupatum* certainly it could never have been. This long term *upochalynidia*, abbreviated into *upochal*, would be a convenient and useful expression for our use in English, for a part for which we have not any particular name, and which we can only speak of by a circumlocutory description of it, we therefore purpose occasionally hereafter to resort to it.

The ancients, as we remarked in a former edition, were certainly not acquainted with the use of cross-pieces to their bits, such as we see with our modern snaffles, and in their sculptured figures and representations we are continually presented with the appearance of a sullen-looking knob, sometimes above and sometimes precisely at the corner of the mouth, this we formerly apprehended could be no other than the means of attaching the bits to the mouth, and which seemed to be a brass hemispheric ball or rivet, which appeared to serve also the office of a cross-piece. An example of these knobs or bosses is afforded us in the two horses' heads from Trajan's column, copied from Scheffer, (*De Re Vehiculari Veterum*,) lib. i. p. 173, and given at Pl. 2, fig. 2, 3.

Now that these two horses were really bitted, we may fairly presume from their mouths being partially open from their effects.

Also these knobs or bosses may be plainly seen represented in an ancient chariot-race inscribed to *Annia Arescusa*, a terra cotta tablet now preserved in the British Museum, and this race was with the quadriga or four-horse chariot; a well engraved copy of which, by my accurate friend

Sydenham Edwards, is to be seen in the frontispiece to my remarks on the "*Shoeing of the Ancients*;" London, 1831.\* On examining these bosses with attention, they appear to be wholly attached to the headstall; how the reins or bits were attached to them is not evident, by a short iron rivet inside, or probably by a loop proceeding below them, and carrying a ring which received both the bit and the reins; future researches may confirm this opinion, or perhaps remove it.

These have been to me, and I suppose, and indeed from their writings it appears so, a great difficulty to others to understand, but the true solution appears to be, and we shall give proof of it presently, that these knobs were really rivets, but which did not immediately fasten the bits, but carried an iron loop which suspended them in the mouth, by passing into a ring for this purpose. And that such rings existed we are assured by the words of Pollux, *κυκλοι σιδηροι*, *annuli ferrei*, or iron circles. Still no mention appears of the above iron strap that we remember to have seen at least.

Now the reason of these iron parts being omitted in their ancient figures, can only be explained by supposing that as grand effect was only wanted, and with the least possible trouble, so they did not descend to the representation of these iron minutiae as being attended with great trouble, without contributing much or at all to the effect, and the chain also was omitted probably from the same cause. Now, however, as the circumstance of one being present is known, the eye will be more ready to discover it in future researches, and we may be able hereafter actually to show an instance of its being represented.

The learned Scheffer has considered these knobs or bosses as the true curcumi of the Greeks, we are however of quite a different opinion, and consider them only as the melon and olive-pieces or rollers, on the bits of the present day; accessories of more value to the artificer perhaps than to the horseman.

We propose now to verify our observations on these bosses and other parts of the ancient bit, from direct examples, which, however, are more rare than might be expected. Beringer gives us a representation of what he considers an ancient bit, Plate VII. fig. 4: he favors us with no remark however upon it, further than that it was dug out of Silbury Hill in Wiltshire, a huge mound in the road to Bath; the account is probably taken from some communication to the *Archæologia*.

In attempting a few observations on this curious article, we should first of all remark that it has

\* Although I have contemplated from time to time for years this interesting antique, yet I never till now was led at all to the suspicion that this triumphant charioteer must have really been a female.

This I conjecture from several strong circumstances: the first is, that the superscription, when properly translated, is to *Annia of Arescusa*, evidently a female name; secondly, that the doubled visage served to imply that in these performances she wore a mask, and which appears to have been that of a handsome young male person; thirdly, the very numerous folds and swaithings apparently of the reins round her body, almost from top to bottom, and which appeared very natural as aiding her to direct her fiery coursers, yet were at the same time as efficiently serving the office of concealing the female lineaments of her person, which to one engaged in so active and masculine an exploit would have otherwise had a somewhat uncouth appearance.

History affords no clue that I know of to the performance of this equestrian heroine; but, should any of my learned readers be acquainted with any allusion whatever to this name or race, they will afford me a high gratification in communicating it either publicly or privately.

Under the article *Arescon*, in Ainsworth's Dictionary, is the following singular account: "*ab αρησκω*," "one who had been a woman, and was afterwards turned into a man, and was married to a woman."

all the appearance of having been found in detached pieces, probably from the destructive effects of rust and time, and that these pieces have been carelessly thrown together by the draftsman perhaps, in preparing them for representation. The smaller œlet at the top, see Plate II. fig. 4, we suspect to have been the holes for riveting it to the leathern headstall; a shortish pedicle or shank of iron proceeds from this œlet downwards, to a larger one, which we should consider in this bit as the upochal. The mouth-piece is that of a simple snaffle, jointed in the middle by two plain rings introsuscepted; and the other, or outer extremities, are with rings also, and rather larger. But the greatest curiosity of this bit is the singularly formed cross-pieces, being of a sigmoid or s like figure, and from the presence of which, we are led to conjecture that it is not of ancient, that is of Greek or Roman, workmanship, they being unacquainted with the use of these parts; their singular form however, and awkward manner, would lead one to suspect that it was a very first or early essay or attempt of the kind. The shorter œlet, that on the left, is improperly placed on a branch of the cross-piece, and appears to have been used for the psalion or chain, or perhaps for the receiving the reins lashed to them by rivets, or held by an iron rod passed through, and being reflected back on the rein was riveted.

We forbear further remarks on this singular apparatus, placed together in so imperfect a state as its two sides evince, by being so palpably unlike. Of the chain under the chin there is no vestige left, if there ever was one, and it certainly from rust would perish in a damp place, before the other parts. We shall only further remark that if Silbury Hill as it is called, received its name from being the burial-place of old King Coel, or Cole, of joyous memory, in Latin perhaps *Coelius*, and corrupted into *Sil* from resemblance of sound; then might this have been the very bit of his horse, and a very great curiosity therefore; but whether it be so or not, we should, from all the circumstances attending the bit itself, be inclined to date its period about the time of the Saxon or Merovingian dynasties.

We now are enabled through the kindness of our friend, Dr. Hodgkin, who procured us the work, to exhibit another specimen or example of an ancient bit, which we believe to be of a date long anterior to the former; and it is copied from the learned work in Latin of *Invernizi De Frenis*, printed at Rome, 1785, octavo, the bit itself was discovered among the treasures of the Borgian Museum at Velletri, near Rome. We ought however to state previously, that Beringer has given us another figure of what he considers an ancient bit, and which we have copied into our second plate, fig. 5, and which, after due examination, we rather incline to believe is not a bit, but the framework of a large Roman fibula, the tongue being gone, there seems no means of connecting it with the other half, if there ever was one, and we suppose it intended for fastening a Roman cloak or toga, or perhaps for the curtains of some large apartment or tent, we shall therefore pass it over.

This Roman bit, fig. 1, we are disposed to believe is a very truly ancient bit, *Invernizi* supposes it of the date of the Christian emperors, and

Fig. 1.



perhaps it is still higher than this; the total absence of cross-pieces, it being a snaffle, disposes us the more to this belief. We propose now to analyse it more closely.

The two pieces which form the mouth-piece are of the most simple character, united in the middle by a plain two-ring joint mutually received; the ends or outer extremities of these pieces are carried through a perforation in a plate of iron, and then curved into a circle, preventing its return; to which circle is appended a thicker and larger ring, which here plays the part of upochal in receiving the guide reins of the hand, and to it also are appended two smaller ones, one of these we may suppose might have carried the chain or psellion, the other possibly the rutagoge or guide rein, it is true both might have gone very well into the upochal, but as it is likely to have been the bit of some distinguished character where expense was no object, a multiplication of parts, one for every different office might suit better with the views and interests of the maker than a more simple one. They may, however, have been merely for ornament as has been before supposed.

We next have to notice with a considerable degree of satisfaction the œlet plate for the attachment of this bit to the headstal, and suspension of it in the mouth. Here it is done by two eyelets, and there is also an oblong opening or slit in the middle part of this plate which might have been used for the same purpose of fastening it more securely, or rather perhaps was given for lightness and ornament.

This most ancient bit contains all the real essentials of a bit, and is perhaps the most simple instrument of the kind to be seen. It is not only the plainest, but one of the smoothest bits that it is possible to form or conceive, yet Invernizi strangely calls it a *lupatum*, and uses that term throughout his work for all kinds of bits, rough or smooth.



Fig. 2.

Fig. 2, is also from this same writer, and is supposed by him to be an ancient *lupatum*, there is little doubt of its being so, and therefore a great curiosity. It is almost too much rusted and confused to make out anything very distinctly, but here we apprehend we see several of those parts of the furniture the ancients were pleased to call *curcumi*, *obolishoi*, *oboli*, *trochoi*, &c.—*et id genus omne*, with their *echinoi*, or points. And as false quotations are an abomination that should be repressed, as greatly adverse to the spread of true knowledge, so Invernizi's reference, at p. 103, to Vegetius, concerning the *curcumi* of the Greeks, is wholly unfounded and false. The word "*corbem*," employed by Vegetius, lib. 2, ch. 33, having evidently no reference at all (that we can see at least) to any such thing. A sort of enlarged, and involuted joint, appears in the middle of this bit, and the two ends or extremities of the mouth-piece are provided with thick knobs of perforated iron, to which it is not clear how the reins were intended to be affixed, perhaps by a piece of iron coming through these perforations and then riveted, nor is its suspension to the headstal in any way indicated by what is here presented to us.

We have now given evidence enough, we apprehend, to prove that these bosses were a kind of rivets for the suspension of the bits, and when there was a *Musrole*, or nose-band, crossing the headstal, which was generally the case,

that was also secured by it at the same time. So that the lateral strap of the headstall did not extend down to the upchal or ring at the side of the mouth, and placed in the axis of the bit, as with our modern snaffles, but this extension was effected by a link, an œlet-link, or cheek-plate, if I may give it this name, which reached to the mouth. And thus is explained a difficulty that had been to us and to others no small trouble, more so than now it is solved could have been believed, for it is simple enough when known, like many other mysteries.

The mind's eye once awakened, can see things before quite invisible, and my worthy and intelligent friend, Dr. Frankum, of Lisson Grove, making a tour into Italy, and awake to the question, furnished me by his researches with useful matter confirming the above views. At Naples he saw the noble equestrian statue of the Emperor Aurelius, and the head given in the margin was a light sketch of it, taken by his pencil on the spot.

In fig. 3 are seen two of these bosses of an immense size, so large indeed, that they could not very well be rivet-heads, as in the former instances, and an oblong perforation or slit appears in the centre of these bosses, further evincing their unsolid nature. These bosses also have a rounded prominent rim or margin.

Now the bits appear to pass within the cover of these rounded plates, for such they appear to be, and are probably held and fastened there by some catch or bolt, which the oblong notch affords the means, by the admission of a key or stylus, of setting at liberty again.

These notches I at first apprehended might perhaps be intended for the insertion of ornamental trappings of metal, silk, or worsted, but rejected that notion on reflecting that as the emperor was on this horse, and supposed to be in public, so the horse would most probably be dressed in full costume, and caparisoned in all respects for the purpose, and therefore complete as he is here represented.

Similar plates appear also in front of this head, having a prominent rim or margin of metal round them, and are variously figured, which would appear to show that they are chiefly for ornament. And we think it likely that they were of highly-polished metal, perhaps silver or gold, and by falling down as from an hinge, they enclosed and concealed the otherwise exposed ends of the bits and the head-gear, where these joined each other. And these covers were made fast perhaps by a clasp or spring-catch, which could at any time be released for the cleansing or polishing of these plates, by a key introduced as we have stated, through the above notches.

How the bits were connected to the headstall strap within these bosses can only be conjectured. However, by rare accident, we are in possession of some clue to this affair, for my worthy friend, in descending, and searching the gloomy ruins of the subterraneous Herculaneum, was there shewn a horse's bit, a copy of which he sketched on the spot with his pencil, and which will go a good way in explaining what we observe. See fig. 5.

Fig. 3.

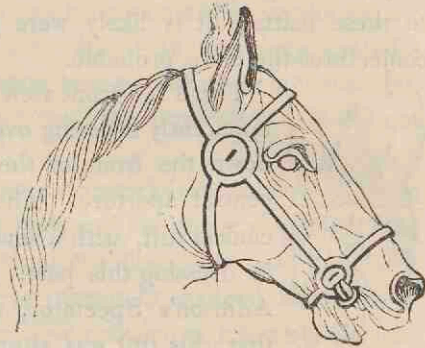
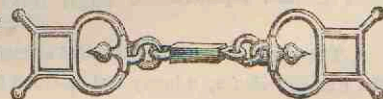


Fig. 5.



On referring to figure 3 of the horse's head, we see a ring on the side of the mouth larger and more distinct than usual, and the same is presented in this bit.

Two rods of iron or thick wires are seen proceeding from this bit (see fig. 3) upwards, to enter the boss; this appearance was quite inexplicable till we saw the Herculaneum bit, where beyond the ring or upochal the two rods are forming an open square, which square frame is destined apparently to give lodgment, first at its upper or top bar, to the headstal, and next by the two lateral bars to the musrole, or noseband, which we see going to these points; now these joinings covered over are then concealed from view by the plate.

It is also to be remarked, that the destruction of this unfortunate city took place at no very distant period of time from the reign of this emperor, so that the same practices in respect to these matters it is likely were prevailing in both cities at this period, and renders our conjectures the more probable.



Fig. 4.

Fig. 4 is a front view of this horse's head, where we observe three of these plates apparently covering over the different joinings of the longitudinal strap proceeding down the front of the face, and which plates are all provided with an oblong central aperture. The foretop of this horse is curiously wrought into a large conical tuft, with a smaller one at its extremity, the fashion perhaps of the times in dressing this part. The other day, however, in casually opening a volume of Addison's Spectator, vol. ii. Essay No. 59, we observed he makes the remark that this tuft was supposed to represent the figure of an owl, "to intimate the country of the artist, who in all probability was an Athenian:" the statuaries being forbid at that period by some foolish law, to put their names upon their works; and so ingeniously devised this expedient to make known the place of its birth.

This Herculaneum bit we see is also entirely without cross-pieces, and has an oblong square piece of metal in the middle of the mouth-piece, intended to rest upon the tongue, this part has been called by Pollux, the *νηιον*, *enion*, and is derived, as Scheffer observes, from *ηνωω*, *jungo*, which rather should apply to the joint itself; and as this interposed piece of metal especially rests on the tongue, we have taken the liberty in our own bit, where a similar piece is found, but considerably more flat, and with perforations for points, (if such should be deemed necessary,) to call it the *Tongue-piece*, for there is a striking resemblance in many respects of this with our own bit, see Pl. 2, fig. 9, which bit however was in use by my friend more than a twelvemonth before his proceeding to Italy: although I acknowledge it was my wish in forming that bit to adhere to the maxims of Xenophon, and to put his rules into a more accordant practice than even these ancients appear in a general way to have done. We may observe, it is to this middle piece or *tongue-piece* that all the players, toys, and trinketry (*υποστοματα*) *upostomata*, of the ancient bit were attached.\*

The last remark we shall have to make on this splendid furniture of Aurelius, perhaps the

\* This same piece, when flattened and armed with obtuse points, bore the name of *τριβολος*, *tribolos*, from its resemblance to the Roman *tribulus*, a heavy sort of wood frame or kind of harrow, with numerous blunt points or knobs for beating out their corn, being dragged backwards and forwards on the floor, the corn strewed upon it, and hence probably our expression of being under *tribulation*!

most so of any ancient example, is this, that on removing the headstall, the insides of these bosses would become exposed and accessible even to the fingers, and therefore not requiring any key or stylus to set the bits at liberty. It is also possible that these notches afforded opportunity of duly adjusting the bits after they were placed in the mouth, which we may remark would be still better accomplished by lifting up the entire plate, a hint perhaps for modern artificers.

Whether in this elaborate representation of ancient horse furniture can be found any appearance or indication of the chain which should appear beneath the chin, we know not, as my friend not having then been aware of the existence of such a part did not particularly look for it; in different small casts of this statue in plaster of Paris they do not exhibit it, nor did we hardly expect indeed to find it with them. And we may easily see that with this chain they only wanted a piece of iron rod or stick thrust through it within the encircling iron to constitute a curbed bit, so near were they to this matter, but most fortunately for the animal the application of it did not occur for several centuries after.

Before terminating this view of ancient biting, it may be worth a remark, that the mouth-piece of the bit was called by the Latins, *orea*, from *os*, *oris*, *the mouth*, and hence the charioteer was termed by them *auriga*, as commanding by the *orea* or mouth-piece; from *orea*, and *agere*, *to act by or with the ore*, which became singularly corrupted or purposely changed into *auriga*, perhaps for more easy pronunciation, or possibly to avoid a too close collision with the word *origo*.

Xenophon always used the term *Χαλινος*, *Chalinos*, for the bits in the mouth; he also extended the same term to the reins, and he used it for both conjointly.

From this word *chalinos* therefore we have presumed to coin a general term or appellation for the whole art of biting, intending, that is, if there be found no valid objection, to treat of the entire business of biting under the head of *Chalinologia* or *Chalinology*, an art or practice surely of consequence enough to mankind to well merit and deserve a proper and separate designation, and which in time will perhaps bring about, at least it is to be so hoped, a more scrupulous and enlightened examination into these affairs, and set things a little to rights which relate to it, by the enforcement with the public, of sound, benign, and wholesome laws, instead of the abused, dabased, and shamefully exercised practices in vogue at present. The appellation *chalinos* is without doubt obtained from the word *Χαλκος*, *chalcos*, *brass*, of which metal doubtless these instruments were originally made, till at length iron being obtained with more facility and abundance, superseded its use.

Of the Latin word *morsus*, which appears to afford us no titular prefix for the art, we may remark it but very rarely occurs in Latin writers, whether it was avoided by them from its uncouth meaning, or from any unpleasant allusion, known only to the natives, but so it is that it is truly rarely seen, *frænum* being usually substituted for it: elegance of diction perhaps, may have alone been the cause of the more frequent use of the latter term.

We here conclude our account of ancient biting, which is indeed truly brief and simple, for there does not appear that we are yet acquainted with, any suggestions of consequence on this art after Xenophon, till the introduction in the sixteenth century of the instrument from Italy, which we shall have to enlarge upon hereafter, called the chain-curb bit.



*On the General Principles for Biting the Young Horse.*

In what should consist the general principle we have already stated, so that it will not be necessary here to repeat it, but a few prefatory remarks on some very vulgar phrases continually employed by those occupied with these arts, and which may continue, if not explained, to lead to misconception and evil, appear to deserve some attention in this place.

In England it is usual to call the educating of the young horse *breaking him in*, and it is, as we from sad experience know, but too frequently lamentably the case, that he is indeed broken-in, and in the literal sense of the words,—that is, deprived of all his noble energies, and subdued and destroyed, with his limbs racked and damaged by violence in such a way that he is of little value ever after, and often made a most miserable object indeed. Instead of his education being conducted with due care and that science which it merits, and with an intelligence and knowledge of the structure, faculties, and habits of the noble creature whose instruction he undertakes to superintend, and which information is indeed necessary to render him the glorious object we are seeking for our use, and for the avoiding those evils, which we may remark especially occur in difficult cases, where there is perhaps a more than usual energy in the animal, and which animals are often indeed the most valuable of any, when suitably prepared and presented to us : that we could wish to see the words *enlightened education* supersede the terrific phrase of breaking-in, as leading to a more just view of the matter, and education is indeed the very word employed in ancient times, and by other nations.

There is another phrase also, scarcely less gross and exceptionable, perhaps even more so, and which leads to strange misconceptions and injurious consequences often in his treatment, which is that of "*tendering the horse's mouth*," directly leading to a false impression of what should be the nature of this tendering process, and by the abominable severity of a laceration and cruelly scarifying the mouth, as being the readiest and quickest way of obtaining this supposed tender state, occasion them a real injury. And thousands have been thus flead and scarified in consequence, and rendered haters of man's dominion ever after: the mouth being filled with unsightly scars and lumps, with a deranged and hardened sensation; thus also making their tasks painful and ungrateful, instead of the parts being properly alive and sensitive, and aiding in the proper functions of the bit.

We should from our own experience, which has been of some date, and practised with a close attention to and observance of, the real effects of these instruments, be of opinion that the mouth cannot be kept too entire and fresh for the full use and effect of the bit; and that it is our duty also to inculcate such doctrine, and widely different views and measures for the obtaining this end; and that the thing we should aim at in obtaining this tenderness should not be by the lacerating and scarifying of the mouth, but by the employing a different doctrine and views altogether, and that our lessons should have for their object to impress indelibly upon the animal the omnipotency and irresistible nature of the bit, and that it was every way to his advantage to yield an obedience to it; and this by a stratagem that has been before employed, though perhaps not hitherto taken up in the full scientific manner, and on those principles we could desire to see

it done, so that the animal should be at all times glad to recoil, if permitted, from their operation on his mouth: we speak of it in the hope that by such views we may at last be led into some amelioration in the biting of the horse, instead of the cruelties we have just had to notice.

I am ready to admit that a degree of severity might be necessary with some individuals at the commencement of the application of such a system, but that something like the above principle ought nevertheless, as I believe, to be laid as a foundation; for by it I understand the forcing the animal upon the bits, immoveably fixed in a machine or between two firm pillars, and which has been by some called *pillaring* the horse; and for rude and insensible mouths such would overcome the hardest, but very gentle and temperate measures would, I am convinced, be all that would be necessary to mouths in general, or the using the hands only, or reining them up a little, but, in cases of obduracy and difficulty, the above proceeding would reduce them without injurious cruelty, or its being pursued to a laceration of any kind.

The pillaring of the horse is by no means, as we have stated, a new idea, it having been long since acted upon, where there was convenient opportunity for it, and such in every considerable town where many horses are kept should be provided; it simply consists in placing the reins with their bits loosely to two pillars, between which the horse is brought and forced upon them by a stroke behind: running forward, he meets the bits and recoils, when he can no longer bear their impression; and dealt with sharply, but with great discretion, he is brought to admit their efficient and irresistible nature, a delusion which, like many others in his education, becomes permanently impressed, at least as far as obedience in a general way is concerned. The chief art in doing it, for it ought to be a profession and study of itself, is in tempering the severity to the disposition and nature of the individual subjected to its operation, and the degree of susceptibility and feelings of the parts of the mouth concerned. Such is the basis we propose: ameliorated by practice hereafter and duly understood, it would, we believe, become of extensive utility and benefit. For the present mode we know frequently to end in the ruin of many fine young horses, and that the coercion and severity of keeping the neck and throat for a long time bent and crushed into a narrow compass, reined up to a fixed machine, or wooden figure, has been such as that the parts have taken to inflaming, and which has ultimately destroyed the animal: this actually occurred within the knowledge of a friend of mine to a horse in Gray's Inn lane, which had been thus shamefully abused.

Different cases certainly might require different modes of proceeding, and different instruments, or differently modified ones, but the broad principle appears to us to be somewhat in this direction. What a reproach to us is the ancient simplicity of attaining these objects; for there is no doubt in their quadriga races the utmost obedience of the animals must have been obtained, and by the simplest bits. And how simply do the northern nations at this day, as in Sweden, manage their spirited little rapid steeds, with the simplest bits, of which we have had an ocular witness in the accounts of that most exact and entertaining traveller, Dr. Edward Clarke, of Cambridge. See "Travels in Sweden and Norway," vol. ix.

Somewhat of a principle for the art being now laid down, we shall next proceed to discuss the instruments employed in its exercise.

*A Description of the different Kinds of Bits.*

The art of biting horses may be said to consist in furnishing the mouth with the most proper mouth-pieces for obtaining from them an obedience to the will of the rider, and exacting a due performance of all the movements and restraints which may be desired, or which at least are dependent upon the operation of the reins. Rightly understood, and well administered, this art affords the power of communicating to the horse support and confidence, with greater ease and security to the rider. The misapplication of its rules, on the contrary, or an inattention to them, where the mouth is not totally insensible, will produce painful sensations to the horse, with disgust and rebellion, and to the rider uneasiness, and perhaps danger.

It is to be lamented that the presumptuous opinions of the uninformed have been too much the guide of the public in their estimation and choice of the proper bits for horses, as also in too many other things respecting these useful animals, tending often to accumulate unnecessary suffering and misery upon them. The writers on this subject are but few and unsatisfactory; we shall, however, except Berenger, whose work is a valuable effort to emancipate this branch of science from barbarity and ignorance; and from him we shall take occasion to make some extracts in the sequel of this article. Here it will be proper to observe, that this author, by the term *bit*, has designated the curbed bit only; but we have ventured, for the sake of pursuing a more easy and connected view of the subject, to include in this term any piece or pieces of metal whatever which are placed in the horse's mouth, for the purpose of guidance or restraint. For those more simple mouth-pieces called the snaffle must have borne the name of bits long before the invention of the other complex instrument, which he is pleased to call a bit, so that of the two the snaffle is by right the more entitled to the term. And it certainly is as much a bit in any proper sense or signification of the word as the other; and by thus bringing the whole family into one and the same denomination, all mystification is removed, and they become more easily considered and examined, and their differences and qualities pointed out; every instrument therefore, that goes between the jaws of the horse, according to our definition of the word, is a bit.

In this account of the different kinds of bits, and their effects, we shall begin, for the sake of order, with the description of a bit of the most simple construction possible, and proceed afterwards to the most complicated.

A short iron rod, made rather wider than the mouth of the horse, and provided with a hook or ring at its extremities for the reins and fastening the headstall to, affords us perhaps an example of the greatest possible simplicity in the construction of a bit; and such a one only slightly curved forwards, to allow more liberty for the tongue, is the one at present in general use for the heavier kind of draft horses, and to which the bearing-rein is also usually attached, and which is then passed over the hames of the collar, and such may be called *The Simple curved, unjointed Bit*.

A rod similar to the former, but broken into two pieces, and connected by a joint in the middle, is the next in point of simplicity, and is in common use for horses of light draft, as

those employed for the chair, curricule, or coach, &c. and is usually attached, not to the reins but the bearing-rein going to a hook in front of the saddle, which kind of bit is then mostly termed with us a *bridoon*, from the French, *bridon*.

The *Common Snaffle Bit*, the next in point of farther complication of parts, is also made of two similar pieces conjoined, and which can scarcely be said to differ from the former, it is provided with two straight longish cross-pieces, which rest exteriorly against the sides of the mouth; for as the snaffle is intended for the saddle-horse, and the reins go to the hands, so these cross-pieces are necessary to prevent the bits from being drawn through the mouth, but which precaution is not so imperatively necessary where the bits are affixed to a bearing-rein. The *bridoon*, however, we may observe, is also made in general much smaller than the snaffle, and is without, or with only very short, cross-pieces.

The distinction however, between a *bridon* and *snaffle*, is truly insignificant and of little consequence; for on all occasions cross-pieces are the most convenient; it will therefore be easily seen, that the *bridon* is merely an imperfect and lighter snaffle, possessing no peculiar properties which can be said to form a real distinction, and ought to bear the name of the *lesser or little snaffle*, or *draft snaffle*, or *snafflette*.

The term *bridoon* also, when used to this object by us, is misapplied; for the French, from whom we have borrowed it, by *le bridon*, understand the snaffle and its rein, in opposition to *le Bride*, by which they denote the *curbed bit* and reins. For in war, and on other occasions, the *bridon* or snaffle was used by them as a lesser bridle, or bridle of reserve, in case of the failure of the former from any accident; and hence the origin of its name, *bridon*, being the diminutive of *bride*, and perhaps a contraction of *bridonette*, if there be such a word. An ancient *bridon* cased in armour is seen Pl. 2, fig. 3.

The number of parts of which the mouth-piece of the snaffle is composed may be increased to any extent, and it may be made with one, two, or several joints; but as it is evident these changes will not essentially alter its properties or effects, except in rendering it a little milder, by being more flexible, so it would be useless to pursue a distinct consideration of them on this account.

But the condition of the snaffle admits of being so altered and changed by the variation of its figure, its substance, and its surface, as to acquire quite new properties and effects, which will require particular attention; since its gentleness or rigour will depend wholly on these conditions. A mouth-piece made of two entirely straight pieces will be more severe than when these are somewhat curved, as the curved bit is more apt to embrace and include the lips, or inside lining of the cheeks, between it and the bars, than a straight one, and it also occupies rather more surface of pressure, and is somewhat less sudden in its operation. A thin and slender bit or snaffle, it will be easily perceived, will also rest with more severity and sharpness upon the bars than a thick and obtuse one; the former therefore, or the thin bit, is employed more particularly for restraining such horses as are hard-mouthed, and too eager, while the latter is used for such as have a proper feeling of the bars, and especially for breaking-in young colts.\*

\* It must be obvious also that a very moderate sized bit flattened, would occupy as much surface of bearing, without the increased weight of a perfectly round one, and thus save the mouth from the suffering of a heavy mass of iron.

Its surface also may be varied *ad infinitum* as to roughness or smoothness, producing different effects. To give the greatest ease possible, a rather large and highly polished bit is necessary. This is sometimes provided with rollers moveable on the axis of the bit, which turning with every movement of the reins, diminish the friction of the bits, and render them less irritating. These rollers however, in reality, can have but little effect in the snaffle, though of useful effect in the mouth-piece of the curb; for this reason, that the snaffle being jointed in the middle, is drawn by the reins to a sharp angle in the mouth, so that these rollers are presented to the bars in an oblique direction, under which position it will be obvious they can have very little or no motion, but, on the contrary, will tend by their irregularity to render the bits more severe; so that a well-polished snaffle is in fact preferable to one of these with rollers of an ordinary construction.

On the other hand, to give the greatest degree of severity to the mouth-piece of the snaffle, it is made square, and twisted whilst hot into a spiral form, and so is made to present a succession of sharp, rough, and unequal surfaces, or cutting edges, to the jaw, and capable, according to the degree of sharpness to which these edges are wrought, of punishing the bars and lips with very great severity. The different degrees of punishment which this kind of bit is capable of inflicting will perhaps be found sufficient for all the purposes of correction, where recourse may properly be had to actual force and punishment. For it should be always kept in view, that gentle means will produce and keep a good mouth; whilst harshness and too great severity will tend to destroy it altogether.

Beyond the changes above described, the snaffle itself does not appear to admit of any alterations worthy of notice. It may however be just observed, that some horsemen add a chain to it, extending from cheek to cheek, which resting loosely on the tongue, produces irritation and slavering, and, as they imagine, freshens the mouth. Such a bit is known by the name of the *Rockingham snaffle*.

Also sometimes we have seen a large ring passed through the ends of the bit, these being enlarged to receive it, and then there is no cross-piece, the ring serving that office, which is a very simple form, and handsome in appearance, and being made of steel, hardened and highly polished, retains its polish with very little trouble, and is perhaps one of the best and simplest forms that the snaffle admits of. Such may be called *The Ring snaffle*. The straight cross-pieces are also liable to injure the cheeks which these rings are not. The ends therefore of such straight pieces should be a little curved away from the cheeks; from the want of attention to this I have seen horses much annoyed. These appear to be all the bits of the snaffle kind worthy a serious notice.

Now as to the source of our term snaffle, which does not appear to have been much understood by the lexicographers, and Dr. Johnson, in his Dictionary, has given us the Dutch word *Snavel*, for its origin; which is indeed an equivalent or corresponding term used in Holland, but is by no means any account of its real derivation. We shall, I believe, seek its source with more success in the old Norman, or French word, *Ganache*, signifying the jaw, or jaw-bone, and from which we certainly obtain our English verb, *to gnash*, as with the teeth; and from

this we apprehend was formed the word, *gnashtel* or *gnashle*, for the thing ground between the teeth, or gnashed upon, and afterwards for more easy pronunciation, for the word was certainly somewhat rough, we obtained *gnaffle*, and for still greater ease of pronunciation and a better effect, at a time when writing was not much in use to fix the word, we get it to *snaffle*; such we are disposed to believe has been its genuine origin.

The French word, *Ganache*, is also clearly a derivation or co-term of the Greek γναθος, *gnathos*, the jaw; and in *gnash*, as also in Shakspear's phrase "*the gnarled oak*," we have the original *gn* still preserved, but in the word, *snarl*, the *gn* is changed for an *sn*, as it is in the word *snaffle*; for there can be no just reason for doubting that they were all derived from this one stock, or parent, *Gnathos*. A Frenchman unable to pronounce the *th* in *Gnathos* changes it we see into *che*, thus making of it *ganache*, giving it however the sound of *sh*. And we in adopting the word follow the same sound, but render it more truly by the proper letters *sh*, as in the word *gnash*, &c.; this is not all, we make of this noun a verb active, which then becomes the parent stock of a numerous progeny of small, but expressive words we could ill dispense with, though some of them are so changed, and *snaggy*,\* and *gnawn*, that even a profound lexicographer can hardly recognize their noble Greek descent.

*Of the reins of the Snaffle, and Snafflette, or Bridoon.* It is to be remarked, that the reins attached to the snaffle always go to the hand, but those of the *snafflette*, or *bridoon* as it is falsely called, admit of various alterations in their disposition as to their being carried higher or lower, which will materially influence their effect upon the mouth, and at this present time there is a practice more especially in horses of light draft, as in those for carriages, curricles, and chairs, &c., to divert and change the direct course of the bearing rein in going to the hook of the saddle on the horse's back, by directing it up the sides of the face, as high nearly as to the parotid gland, or base of the ear, where it is passed through a ring hanging from the headstal, and from thence is directed to the saddle. The appearance is thought ornamental, and the reins so disposed are considered as more forcibly elevating the head than if they proceeded to the back in their natural course. It is, however, but a bad plan, since it tends to draw the bits from off the bars, where they ought ever to act, and to bring them over the grinder teeth, and so direct them against the corners of the mouth and cheeks, producing a distorted unsightly appearance, and an improper appui or bearing of the bits upon these parts, the bars, where as we have said to produce a good impression, they ought always to rest.

The crooked angular direction of the rein has ever appeared to us more fantastic than elegant, and the practice is certainly inconsistent with the principles of sound horsemanship or biting. This sudden angle or turn of the rein will also induce a stronger pressure towards the point of deflexion, viz. that part of the headstal next the ears, the part least agreeable to all horses to be much pulled at or pressed upon.

As the bits themselves, so these appendages of the bits admit of almost endless variation. And the manufacturers of these articles availing themselves of this licence, render their business more lucrative by as frequent changes as possible; which are successively introduced as fashion-

\* "Snaggy, of this word I know not the etymology or original."—*Johnson's Dict.*

able novelties, till again for novelty they return to the simplest practice, the most complex arrangement however as might be expected has now but too long prevailed, and we may hope therefore the contrary practice may now have its fair returning period, and of equal or longer date. All these changes take place however without any very essential departure, or ought at least, from the general principles universally admitted.

*Of the Lever, Purchase-bit, or Curb-bit.*

The next kind of bit in use for the horse is the curb-bit, which, as it is of much greater complication of parts than the snaffle, so it appears to have been of comparatively recent date.

In ancient sculptured equestrian figures, however, something like the branches are seen proceeding from their bits, as we may see in the ancient head, pl. 2, fig. 3; but it is pretty evident, that it is proceeding from the axis of the mouth-piece, and is probably attached by a ring to its upchal, and therefore possesses no more power scarcely than the chain or armed rein would have to which it is attached; and here as it is the warrior's horse, the rein is defended by scales or plates of iron, or of brass, to prevent its being divided by the sword. The other head, fig. 2, in all other respects alike equipped, has the rein (a short rein, or bridon, or rein of reserve) without any defence of this sort, the iron branch therefore was probably merely a continuation in solid metal of a flexible chain, or rein wanting a purchase from want of a solid connexion with the mouth-piece.

Italy appears to have had the honour of the invention of the curb, which country some centuries past, as we learn from their various works, (see History of the Horse, p. 40,) took the lead of the other nations of Europe in teaching the arts of the manege, and their pretensions were much encouraged in Henry the Eighth's and Elizabeth's reigns, but it was not till the Stuart's came that it was introduced into the English army by a proclamation made in the third year of Charles the First, since which time it has got into almost universal use for the army, the road, and the field, so that a horseman deems himself in general but imperfectly equipped without it.

Most of those writers who have treated of it in the last and in the preceding century, and who wrote probably soon after the commencement of its use, have been very profuse in their various proposals for the construction of it, and especially in rendering it more complicated, severe, and cruel; although it is probable their clumsy figures and absurd representations were never really imitated in actual practice. Yet they appear to have been much satisfied with their new invention, imagining it a sure means of reducing a horse to immediate obedience in spite of every obstacle; and true it is, it can punish with extreme severity; but is such a measure most likely to create or to overcome vice? Indeed, according to the opinion of one of the ablest writers that has ever considered this subject, and whose opinion we shall take an opportunity of quoting more fully hereafter, little or nothing has really been gained by its adoption; on the contrary, the snaffle is possessing more simplicity, power, and perfection.

Stripped of all unnecessary trappings, this instrument consists of the following essential parts: a solid mouth-piece with two side branches, or inflexible rods of iron firmly united to the former, and a chain fixed by one end and loose at the other, passing behind the chin for inclosing the

jaw. The branches ascending high above the mouth have an oblong square eye at their upper part, for suspending it to the headstall and staying it in the mouth; which part has obtained the name of *The Banquet*, or *Cheek-piece*. Two rings are provided at the lower extremity of the above branches to affix the reins to, which are passing to the hand. These are all the parts essentially necessary for constituting a curbed bit.

The machine placed in the mouth, and the chain passed round the lower jaw, the branches it will be seen become powerful levers when drawn backwards, acting by means of the chain upon the mouth-piece as a centre, pinching and squeezing whatever interposes between it and the chain, with a force equal to the length of lever afforded by these lower branches. The quantum of force it will be perceived is not only measured by the length of lever below the mouth-piece, but also by the distance at which the chain is affixed above this centre, the farther it is removed the less the power, and it is usually affixed to the eye of the cheek-piece; therefore, the horseman sometimes quaintly says, that it is the eye of the banquet that commands the bit.

It will be manifest therefore from the construction of this instrument that its whole force is exerted on the jaw itself, in squeezing it, and that it has the power to pinch the bars with cruel violence even to the fracture of the bone, which with branches of no unusual length has often happened. It can also crush and bruise the tender lining of the mouth, and the skin also beneath the jaw. If the horse fall upon the ground, and these bits receive the impression, little less than the fracture of the jaw can be expected, of which a case occurred at Knightsbridge, and was under the care of my friend, Rogers, an eminent veterinary surgeon; and another friend of mine fractured his blood horse's jaw with it, and a most tedious case it was, in the former case, a piece of the bone exfoliated as large as a filberd, which he presented to me, that we may guess a little what sort of impression these iron levers produce.

From considering its mode of operation, it might reasonably be doubted whether it does in reality stop the horse by any power or opposed force, as is generally conceived at present, or rather by the severity of the pain it inflicts; for, should the horse arm himself against this, it is totally insufficient to arrest his course; in proof of which instances occur in runaway horses every day. Indeed the snaffle has the advantage, where a powerful arm is used, and also in not maddening and rendering the animal infuriate and desperate, and this is the opinion also of many really practical and experienced horsemen.

We have considered these branches as plain straight levers of indeterminate length; in actual practice however they are varied in all manner of fantastic ways, which are often considered as of peculiar effect; by some they are bent into the figure of the letter S, and by others into that of the letter C, or Z, which they are sometimes told by the bit-makers are productive of unaccountable effects; but it is the length of the lever alone that gives it its power, so these differences, as far as they effect the animal, are not of very great moment, though the simpler the better, for many good reasons. And some there are who turn the ends of the branches outward, pretending that this makes them very powerful indeed, and one thing it certainly accomplishes, that of adding more awkwardness to an instrument already very uncouth. In the army, formerly, they were used of an enormous length, but this barbarous custom has been of late



most wisely done away. Stopping horses at full gallop too suddenly, and without sufficient warning given, has been productive of miserable effects, and especially to their hocks, by causing curbs or callous enlargements at their back part, of a most injurious description.

The most useful bit of any of the curbed kind appears to be what is called the *Weymouth-bit*, at present in common use for draft horses of light work, as for carriages, stage-coaches, &c. ; which consists of a strong, plain, polished mouth-piece, of uniform thickness throughout, without any upset whatever, but only a little curved forwards, to give more liberty to the tongue. This construction is not only the simplest, but as we have already stated, the most useful of any of this order of biting. The arch however should be kept flat, for fear of painfully compressing and squeezing the bars together.

*Of the Mouth-piece.* This part in the curb-bit is usually provided with what is called an upset or arch in the middle of it, as it would, if perfectly straight, rest on the tongue, and occasion unpleasant restraint, for we see in the frontispiece how high the tongue is above the other parts. This passage for the tongue is often made so narrow and small by the bit-makers, that one should apprehend they scarcely had a right idea of its use or intention. From the circumstance of its allowing a passage for the tongue, it has been called by some the *liberty*; and, for the same reason, by others the *porte* or *door*: hence we have the *porte-mouth* bit, vulgarly called among the bit-makers and grooms the *Portsmouth* bit; and, by a supposed counter or collateral expression to this term, we probably get the *Weymouth* bit. Instead however of this part being a liberty, or advantage at least, it in reality appears to have the effect of preventing the tongue from raising the bit from the bars, and thus of not permitting even a momentary relief from its rigid impression. His only resource then, is to draw in the tender inside lining of the cheek, in order to protect the bars; and this tender part by being crushed and bruised under the iron, at length grows white and cartilaginous, as we see it represented in plate 1, fig. 1.

In draft horses, especially for the coach, it is a frequent custom to have affixed to the upper part of this upset small chains or polished drops of iron, which, hanging loose in the mouth, and falling on the tongue, occasion the horse to champ the bits, sometimes creating a copious flow of saliva, so as to slaver the lips with its white froth; and, when this happens, it is considered by some a good sign of health and gaiety, and that the horse is well bited; for, if the bits are disagreeable to him, he never plays with them, or exhibits any froth, say they. That these players tickle, and produce a flow of saliva, or slaving and froth, there is little doubt, but as to its creating any pleasure may be much doubted, since, when he is bited with easy, smooth and mild bits, consequently the most pleasant, he rarely exhibits any signs of this sort, and, on the other hand, with horses most painfully and shamefully bited we see this froth in abundance, sometimes mixed with blood. What the horse's real feelings are it is not easy to know; these small appendages are termed by the French *les chainettes*, and by the English, *players*.\* Whether this irritation is agreeable or not may be fairly questioned; one purpose they certainly serve, which is well understood by the bit-makers, but we believe the more simple the bit the better, and the

\* And these from being straight, or like fingers, were called by the Greeks *δακτυλίοι*, *dactulioi*, such are often seen appended to the arch of our modern curbed bits; but whether of any real use is very doubtful; also *οβόλοι*, when round and flattened like a Roman penny or obolus; and *τριβόλοι*, if square.

more agreeable to the horse; it is also cheaper, and certainly more easily kept clean and free from rust.

It is farther to be observed, respecting the mouth-piece of the curb, that the straight part which rests upon the bars of the jaw is termed by the French *le canon*, and by the old English writers the *jeive*; and, though it be a highly convenient and useful word, it is to be regretted that at this present day it is entirely out of use, the French term, which is not so expressive, or applicable to it, having superseded it. This part should be well polished, and may be made of any proper figure, as that of a cylinder, cone, oval, globular, pear-shaped, &c., the plain conical or cylindrical is perhaps the simplest and the best.\*

It is obvious that the effect of the *jeive*, as far as it respects the bars of the mouth, will be correspondent to the thickness or thinness, smoothness or roughness, of this part; and the larger and broader it is in reason, the more surface it covers, and the pressure, by being distributed over more points, becomes less severely felt. This enlargement, however, of the canon or *jeive* should not be carried to excess, by making it too heavy, and a burthen to the jaws, or so large as that by filling the horse's mouth with a greater bulk of iron than it can conveniently receive, it may create pain instead of greater ease.

To render these irons less irritating to the mouth, and to avoid their friction upon the bars, the *jeives* are often provided with loose, moveable rollers of well polished iron, which readily turning on the axis of the bit, very considerably diminish their severity. These revolving pieces are also apprehended useful in preventing the horse from catching and holding the bit in his teeth; as the curb, under these circumstances, can still move and act with the same freedom as before.†

These *jeives* have also sometimes been composed of three or four flattish knobs, united by a joint to each other, and with a joint also to the upset, all which labour is intended to render it very severe; it is obvious, however, that such alteration must bring it nearer to the condition of the snaffle; if these knobs however could be drawn transversely across the bars, they might produce considerable irritation, but not so much as they would do if not jointed. This incongruous bit is not unfrequently used, and is called with us the *Hessian-bit*. Its greater flexibility and consequent mildness is the true cause no doubt of its being more approved.

This curb-bit is often made with a ring or loop opposite to the mouth-piece, which, as it is directly in a line with the axis of the bit, can have no other effect, when the reins are affixed to it, than a snaffle would have, if provided with a similar mouth-piece. This is termed putting "the reins to the check," and for horses of light draft, whose mouths are not ruined, it is by much the best, as the mouth is less annoyed, and the horse obeys with

\* *Jeive* was, I suspect, the old English or Saxon name for the snaffle before the Norman invasion; and hence Gibes and Jeers, for a twisting up of the corners of the mouth in jest or derision.

† We however much suspect the notion to be a fallacy altogether, for in the fore-teeth he cannot get it, as the head-stall prevents its ever reaching them, and hard iron is of a nature so unpleasant to bite upon, that I suspect no horse will touch it in this way, and if between the grinders it would throw the mouth very wide open, which I never saw or has any one of my acquaintance. The horse indeed could not well be bited if he had it in his power at pleasure to take the bits in this manner in his teeth, so that I suspect the whole is a groundless imagination and fable, like many others in this art; when the horse perfectly resists the bits, I rather incline to suspect, he throws up his head and lets them fall against the fronts of his grinders.

more alacrity the guidance of the hand from this point, than from the extremity of the branches, which are particularly ill calculated for such a purpose.

In the older English writers, as well as in those of the Continent, on the subject of bits, we find an appendage described, which is not at present at all in use; and, as it enters the mouth with the mouth-piece, it may with propriety be described along with it. It consisted of a chain extending from branch to branch of the banquet, or cheek-piece, being placed rather above the mouth-piece, and parallel to it, and was stretched across perfectly straight and tight. This part was called the *water-chain*, and by the French *Trenche-file*: its use is not very evident. Mr. Berenger takes notice of it, and observes "that it might be useful to horses that are apt to *drink or swallow* the bits, as the expression is, or bury it so deep in their mouths, as to hinder it from having a due and just effect:" from its being laid aside so universally, we presume it has at least been thought useless.

It is also a common belief with the grooms that a great power resides in the upset of the mouth-piece, and that the bits are more powerful as this is longer or shorter; nothing, however, can be more ridiculous than this reasoning. In the works of Laurence Ruse, a French writer, we find, therefore, in accordance with this idea, a curb with an upset of most unusual length, being destined to correct the vices, "*d'un Roussin qui à la bouche d'une diable;*" it will be obvious, however, on a moment's reflection, that this part, from being made very lofty, and coming forcibly against the palate, would compel the horse to open his mouth, when it would cease farther to act in any way; with more reason, the same writer proposes, on the other hand, "*pour donner grand plaisir;*" to have a bit constructed with a low and sufficiently wide upset, with large, conical, smooth rollers for the bars.

*Of the Chain.* The chain is the part most essentially necessary to give effect to the branches of this kind of bit, and it may be placed or fixed, as we have already noticed, at any given distance above the mouth-piece; its operation being more powerful, as this distance is exceeded by the length of the branches. This position, though true as a general principle of reasoning, appears to be subject to the operation of other causes in actual practice, which it will be necessary just to consider; for, in direct contradiction to this is the assertion of Berenger, who appears to be almost the only writer who has really at all investigated the merits of this particular object. He observes, in regard to it, that the nearer the chain, and the longer the branches, the softer and more indulgent its operation. This, on a first view, appears to be in direct variance with the rules above laid down, and irreconcilable to the well known laws of the operation of the lever, and even at variance with his own preceding assertions: when, however, we remember the experience and practical knowledge of him who asserts it, it deserves a more particular consideration. Let us first admit the truth of the position, as it seems founded on the sure test of actual experience, and then we should venture the following as the most natural explanation of it.

In proportion as the branches are longer, the more extensive is the circuit their extremities will perform in their operation; and therefore the hand that guides them must pass through a greater arc or space to produce the same effect: and now, if the chain be placed very near to,

the axis of the mouth-piece, and be applied not very tight about the chin, yet, in reality, though there would be an apparent increase of power by the length of the branches, they would have little or no effect, as the hand would arrive at the utmost extent to which it could be drawn before the chain would begin to pinch. But it is clear that a shorter lever, with a chain fixed not so close to the centre of motion of the bit, would produce a quicker effect with less motion of the hand. So that perhaps this paradoxical proposition about long branches will be best avoided altogether, from the great uncertainty of its conditions being exactly complied with; and then it would become, instead of a tender and indulgent bit, the very severest of any.

The chain being fastened on one side to the eye of the banquet, or cheek-piece, where the headstall is fastened, is fixed on the other to a hook or crotchet hanging from the same part. The chain, as it is at present used, is composed of iron links or rings, so bent or indented as to form, when put together, one uniform nearly smooth flat surface; and by twisting or untwisting these links, it may be made to present a surface with any degree of roughness to the chin.

Where great tenderness is required, this chain may be covered with leather or cloth; or, where a still greater delicacy is desirable, the curb may be made wholly of leather, without any chain. The larger and thicker the rings are, provided they are smooth and well polished, the easier the effect of the chain. It should be also longer than necessary, in order to its being applied loosely.

In old English, this chain was used to be called the *kirble*, and hence, by contraction, *kirb*; and by the change of the *ki* into *cu*, we apprehend the modern appellation of this instrument has been obtained.

In concluding, it remains for us to notice the proper application and adjustment of these bits to the horse's mouth, and afterwards to treat of their manifold abuses.

By the management of the headstall, by its straps and buckles, the snaffle bits should be so adjusted as to fall in the middle space between the tushes and grinders, resting upon the bars: the mouth-piece of the curb should also occupy the same situation; when however it is used along with the snaffle, the bits of the snaffle should be placed first, and highest in the mouth. If the bits are placed too high in the mouth, the horse will carry his head awkwardly aloft; and if too low, he will stoop the head, and perhaps try to play with them in his teeth, or perhaps thrust them from his mouth altogether.

The thicker and more fleshy, and the wider or broader the bars of the horse are, the rougher may be the mouth-piece, and the leaner and more delicate consequently, the bits should be less severe, which is not enough attended to, and is a source of great suffering to these animals. Care should also be taken that the mouth-piece be well suited, to the full width of the mouth, and that it be not too narrow, as this would give pain, by squeezing the bars together. Where the tongue is large and also prominent, the upset should be in proportion, otherwise the bits could not rest upon the bars, but would press alone upon the tongue.

In regard to biting the horse, and the consideration of its real effects, we cannot desire to see any thing more consonant to truth and reason than what has been given us by Richard Berenger,

and with some useful extracts from his valuable performance, we shall conclude this part of our subject.

*Of the Education of the Young Horse to the use of the Bits.*

*Of Biting Horses with the Curb.* “In the beginning of an undertaking, whose aim is to subdue and reclaim nature, and that at a time when she is wild, ignorant, and even astonished at the attempts which are made upon her, it is evident that she must not be treated but with lenity, instructed with patience, and by small degrees, and that nothing should be offered that may hurt, surprise, or occasion any disgust.

“The horseman, therefore, should not act the part of a tyrant, but of a lover; not endeavour to force her to submission, but strive to gain her consent and goodwill by assiduity, perseverance, and the gentlest attentions: for what prospect of success would rougher manners afford? To what purpose would it be to compel a colt to go forward, or turn from fear of the whip or spur, and to trot and gallop so freely as to supple his limbs, and form his paces; if the novelty of the bit, and the unaccustomed restraint to which it subjects him, should vex and confound him, so as to make him not know what to do, or how to behave in these extremes? It cannot be expected, that he will be guided, and go with ease to himself, or pleasure to the rider, if the instrument, by which he is to be conducted, offends or gives him pain: all habits and acquirements should be attained gradually, and almost imperceptibly: rigour and precipitation would ruin all; and, instead of forming the horse to the execution of what is required, may plunge him into vice and rebellion so as to occasion much trouble and loss of time before he can be reduced.\*

“He should not, therefore, at first be considered as if he was designed to be formed to all the delicacy and exactness of the bit; and the horseman should be content, if he will endure it in his mouth, so as to grow, by little and little, accustomed to it, till the restraint becomes by habit so familiar and easy, that he not only is not offended, but begins even to delight in it; for this purpose, great care should be taken that the bit be easy and gentle in all its parts; that the mouth-piece be larger than it need be for a horse already used to a bit; and that it in nowise incommodes the bars, squeezes the lips, or galls the tongue.

“The mouth-piece, called a cannon, with a joint in the middle, will be the most suitable; the ends of it should be as large and full as the size of the mouth will permit, for the thicker and more blunted they are, the easier they will be for the horse, and the *appui* less strict and severe.

“The links of the curb should be big, smooth, and well polished; the curb somewhat long. The branches should be exactly even with the line of the banquet, to make the *appui* moderate and equal; they should likewise be long; nor does it signify of what shape they are, for with most horses they ought to be so weak as scarcely to have any effect; so requisite it is to guard against everything that may annoy or disturb the horse in these first trials. In order to recon-

\* And so says Xenophon, “that when you would wish to slacken the pace of an eager horse, that hurries on too fast, and would pacify his fury, and make him go more temperately, or even oblige him to stop, you should not attempt to do it at once and with violence, but artfully and by degrees, gently pulling him in, then yielding the bridle, and playing with his mouth, in such a manner as though you wished rather to win his consent than to force his obedience.”

cile him to this new constraint, the reins should be held in both hands; and the horse, for some time, should only walk under the rider. Above all, upon this and all other occasions, a firm, a light, and diligent hand, is necessary.

“Such are the outlines and general principles upon which the art of biting horses is established; which art, as far as it reaches, is sure and constant; but which, in spite of all the merits and praise of which it has so long been in possession, will, upon a serious and strict trial, never, I doubt, be found adequate to the views of a sound and intelligent horseman, nor capable of bringing a horse to that degree of suppleness and exactness of carriage, which the truth and perfection of the art require, these attainments seem to have been reserved for a more simple but powerful machine, called the *snaffle*.

“To perform his business justly and gracefully, the animal must first be made supple in his fore parts, and his head and neck so managed, that one may be raised, and the other arched or bent more or less to the hand to which he is to turn. The bridle called the bit, is so impotent in its endeavours to raise the head, that it even produces the opposite effect; nor from the confinement in which it keeps the horse, and the small compass it affords for the action of the rein, does it allow the rider sufficient room to bend him, without pulling down his head, and putting him upon his shoulders, both of which are incompatible with the true and sound principles of the art. The frequent use of cavasons and bridons fully evinces the want of power in the bit to supple the horse, or raise the fore part.

“The figures and representations of horses working upon different lessons, may be appealed to for the confirmation of this assertion. The books of past times abound with them, especially that boasted work of that king of horsemen, the duke of Newcastle, whose horses are all drawn with their heads between their knees; and yet are exhibited to the equestrian world as standards of truth, and models of perfection. The successors of this duke, and of other great masters as imitators, are generally a blind and servile herd, who ran headlong into the errors, and adopted the faults of their predecessors; and always made use of bits, without reflecting upon their effects, or perceiving that they could operate to make the horse carry low, or to put him upon his shoulders, while they thought all the time that he was upon his haunches.

“If ever there was a panacea, or universal medicine, the snaffle is one, for the mouths of horses; it suits all, and accommodates itself to all; and either finds them good, or very speedily makes them so; and the mouth once made, will be always faithful to the hand, let it act with what agent it will. This bridle can at once subject the horse to great restraint, or indulge him in ease and freedom; it can place the head exactly as the horseman likes to have it, and work and bend the neck and shoulders to what degree he pleases. He can raise the head by holding up his hand; by lowering it, it can be brought down; and if he chooses to fix and confine it to a certain degree, he must use for this, as well as for the purpose of *bending*, *double reins*; that is, two on each side, the ends of which must be fastened in a staple near the pommel of the saddle, or to the girths, higher or lower, as the mouth, proportions of the horse, and his manner of going, require; and, if properly measured and adjusted, they will form and command the horse so effectually, as, in a great degree, to palliate many imperfections of the mouth, and many faults in the mould and figure of the animal.

“The reins thus fastened, or even one only, for the sake of working one jaw and one side, will operate more or less, as the branches of a bit; and the snaffle will almost be a bit, a bridon, a caveson, and a martingal, in one. When the horseman would bend the horse, he must pull the rein on that side to which he is to go, carefully observing to lengthen that of the opposite side, that they may not counteract each other. Nothing will awaken a dull mouth, and bring it to life and feeling, so soon as this bit. If the mouth be hard and callous, the iron should be so twisted as to have a sort of edge, which will search the lips, and when these will permit, the bars also; and if gently moved, or drawn from side to side, keep the mouth fresh and cool.\* If the twisted or rough snaffle be thought too harsh, and the hand not skilful enough to moderate its effects, a smooth snaffle may be used, or if a bit of linen be wrapt round the twisted snaffle, it will make it easy and smooth; and the mouth, once made fine and delicate, will be true to its feelings, will obey the snaffle, and follow the hand with as much exactness and precision as the bit knows to demand, but with more freedom and boldness than it ever can allow.”

Such are the properties and merits of the snaffle, which long observation, and not a little experience, have taught the writer of this article to think preferable (generally speaking) to those of the bit; and which he has been therefore induced to point out and recommend, with due deference to others, but with a greater deference to truth and justice: “*detrahere ausus; hærentem capiti multâ cum laude coronam.*”—Berenger’s *Hist. and Art of Horsemanship*, vol. ii. p. 221, &c.

Such are the proofs of the advantages of gentle biting over severe, from one of the most experienced and reflecting horsemen that has appeared in modern times; he was indeed made equerry to King George the Third, and was the first, after Browne, (*On Snaffle-riding*, 1624,) to call in question the absurdities of the Italian and French schools of equitation with the curb. Browne, in order to this raising of the horse’s head to the bit, in his first lessons, which are attended with some difficulty, recommends the use of a pulley, over which a cord passes to the hand of the equestrian standing behind the horse, slaking it to him and encouraging him whenever he raises his head to the impression of the bit, which is naturally enough apt to produce the contrary effect, perhaps indeed at the first, not exactly understanding what is meant by it, creating an impatience in obeying the calls of so very novel and unexpected an intruder, made often for young colts preposterously large and heavy.†

\* These are words current among horsemen, but certainly very wide of the truth and of fact, or of what is even meant to be conveyed; a state of non-irritation, is perhaps all that is really intended. As to the dryness or moisture of the mouth, it is the state of the body, as well as the effect or degree of irritation which the newly inserted bit occasions to the mouth, that must be taken into the account in producing this condition of it. The language of modern horsemen hitherto abounds in ambiguity, obscurity, and even sometimes wilfully delusive expressions: neither is this chapter, the best certainly in the whole work, entirely free from contradictions and obscurities. A joint to a curb bit renders it only an incongruous anomaly of no character whatever, neither can branches without being ridiculously long and slender be “tender,” that the idea or expression of tenderness is a mere delusion, and others we could also point out.

† Was I once more to engage in this department of study, I should think it worth the ascertaining how far this carrying of the head low was occasioned partially or altogether by the bits in the mouth, or whether in part it might not be influenced by the pressure of the headstall against the tender part immediately behind the ears: a part which the ancients held almost sacred,

*On the Abuses of Biting.*

Having been much used to, and employed among horses, during a course of forty years, in which time I have witnessed a great deal of unnecessary ill-treatment towards them, I can hardly conclude this essay without some observations and remarks which my experience has afforded me, in respect to this instrument, in order, if possible, to lessen the mass of suffering these worthy creatures are still made to endure. Their inoffensive lives, defenceless state, and often profitable and delightful labours, one would think must excite feelings of compassion towards them, and in every man they would find a friend; it is however far otherwise; and, where interests are concerned, they are often very little better considered than mere inanimate machinery, that is without sense or feeling. And it is sorrowful that custom and frequency, instead of making us more alive to the gross amount of oppression, hardens us till we see it not, or only as a matter reconciled by its notoriety. And then again abuses are often carried by extortion and ignorance together so far as to bring loss instead of profit to the extortioner. Surely, in these reforming days, we ought to hope that his claims will ere long meet a more general attention, and that in the public he will find an efficient protector, and that his days which are passed in misery and pain, might as well, under another system, be passed in cheerfulness and comfort, with its many attendant advantages.

Certainly, when this machinery of the curb hangs loose in the mouth, and the chain is dangling about the chin, no great harm can arise from it, beyond the clumsy bulk and weight of metal that his jaws, in this case, have to hold and to carry. It is a mass however irreconcilable to sense and reason, and which, if he had really required, (for it is cowardly fears and groundless apprehensions that usually lead to it,) he would have been indeed but ill suited for that domestic station he was evidently intended by his beneficent Creator to occupy in men's affairs. Though if dangling in this way, the bits are productive of no greater harm than we have stated; yet if the branches are long, and the chain tort about the chin, as we frequently see it, then it becomes indeed such an instrument as no ignorant man should be intrusted with, remembering well the strength and weight of the reins themselves, and of a heavy arm and clumsy fist dwelling upon such a machine. We will also farther observe another condition of it, which, as it is mere matter of chance whether it be present or not, must continually occur, viz. that the chain has been left of that length or looseness that the reins bring it to tightness just as the branches are at a right-angle or perpendicular to the chin or jaw; it is then in its severest attitude, and capable of executing a most

and to be kept exempt from pressure; and no one practically experienced in the use of the horse but must have perceived the very great aversion they have to this part being pressed upon or pulled at. See *Stereoplea*, p. 26, for further details. This circumstance is wholly disregarded by modern horsemen and bit-makers. And we would especially draw the reader's attention to the place of the frontlet in ancient representations; it is nearly half-way between the ears and the eyes, in the horses of the quadriga race of *Annia Arescusa*, and also in the two heads from *Trajan's column*, given at *Plate II.*, fig. 2, 3; therefore clearly not the effect of accident, but design, for here the topmost strap of the headstall, we may observe, is thrown back several inches distant behind the ears, on to the *encolure*, or arch of the neck: thus avoiding any pressure directly behind the ears, which is in fact the *occipital region*, or place of pithing; the most tender and undefended part of the whole horse, where the insertion merely of a penknife blade would be instantly fatal. Nor does it appear by their writings that they were nearly so much incommoded by this holding down of the head on the first application of the bits, as we seem to be at this day. This effect of holding down the head we are led to apprehend, arises in a great degree from an attempt of the horse to suspend the bits in his mouth, that their weight shall repose upon the headstall rather than upon his bars, as being the lesser of two evils, at least we wish to call the horseman's attention to this view of the matter.



cruel crush to the jaw and its coverings, such a one as we cannot contemplate without shuddering. It is in fact as a hair-trigger pistol in the hands of a child! We may suppose also, without any violation of the truth, that the driver is not only ignorant of the effects of his machinery, but that he is half inebriate, and full of the notion that it is all by his strength that he is to command and arrest the course of these animals, and that he has a right so to act. Yet are these the very men that, from an abuse of that power, most frequently get into trouble. If such a machine was placed about the shins of one of them, before he was suffered to mount the box, and gently twitched by one of his comrades, he would be much more likely to understand and to consider well before he hauled a good one upon the jaws of his friend below the box. How often do you see Mr. Coachee, before he starts, starting down from his box to tighten that curb-chain which his friend the horse-keeper had left mercifully relaxed, and whose prudence and long experience had had but too often to see and witness on his horse's jaws the consequences of a different conduct; caution and knowledge prompting the one, tyranny and cowardice the other.

Now the power of pinching, for that in reality is all, as we have stated, these sort of machines can do, is so severe, that the poor animal expresses his inability to bear it generally by shaking his head first, and this availing him nothing, it is often followed by direct rebellion; this is only met by severe chastisement, which I have often seen, or is perhaps defended, by the ready pretence that it is all for want of a more severe biting! and in this way is he made *to face*, to use their own expression, his tortures. Has not every animal his natural rights? can we therefore be justified in taking him from his natural haunts, and bringing him into our services, promising by caresses not to hurt or abuse him, and then inflict upon him such abominable torments; it is indeed the want of knowledge more than any design of the kind that this is to be attributed to; the public too readily, yielding to the practices of ignorant pretenders to the art. Often have we seen them with their mouths wide open from the effects of this lever bit streaming with froth and blood yet peaceably working: at other times, pinched on one side by the bit and chain, and endeavouring to avoid it by carrying the head to the opposite, but which, as this looks ill, is met by a friendly strap to prevent it.

What an abominably painful sensation these bits excite in the mouth, is most manifest from the very great uneasiness and dislike which nearly all horses exhibit on their being first introduced to them, which in some spirited horses can never be overcome, but which are perfectly gentle with a common snaffle. The continual accidents also, from their abuse, exhibit its inaptitude for common use; accidents which appear almost daily in the papers: some ascribed to the true cause but many not, from the ignorance in these matters of the reporter. The following may serve as illustrating this position, taken from the *Times* newspaper. "Accident in Smithfield: As a carman was driving his cart through Smithfield, a gig-horse *flew round* and backed against the cart, and the gentleman was thrown out," &c. Why did he fly round but because the severity of the bits made him furious with pain, and he tried to get relief in this way most naturally.

I once also was witness to a curious scene on Blackfriars Bridge, of a young man in a gig, who had gagged his horse severely with the curb, being perhaps his first performance: he pulled the bits, and the horse, perhaps not used to be so treated, backed, unable to bear it; indeed, without much pulling, the weight of the reins seemed sufficient for the effect. He then flogged the horse

and went on a few paces, and on this discipline ceasing he again backed; again he flogged, and again advanced, but on the cessation of the castigation, he again stopped and backed, evidently unable to face the bits. In this way he was continually stopping and backing, to the great amusement of the spectators upon the bridge, till I begged him to allow me to cheek the reins, which was no sooner done than he proceeded without further inconvenience.

Another I take from the *Times* newspaper, of rather a different description. "A few days since, as Sir P. L. and his lady were riding on horseback, her ladyship's horse suddenly reared up and fell backward, by which accident she broke her collar-bone." It was only wonderful that the animal, unable to bear the pinching of the machine, had not fallen upon her, and crushed her to death. It shows at once what must be the pain, when an animal will rather risk his life by such a *reversement* than suffer the pain of the pincher-machine. Another I observed in a different paper thus: "An inquest has been held by the coroner for Bury, when it appeared in evidence that the blow given to the horse was very trifling, but he was checked by the curb rather too sharply, which made him rear, and occasioned the fatal accident." The rider no doubt retaining the reins in his hand, and pulling the horse over him, &c.; and such examples we might multiply *ad infinitum*. It is indeed most extraordinary, when so many disasters are continually taking place, that people will persist in their use, especially ladies; but the fact is, they are deceived first, and are wholly misled as to their real nature and properties.

The following incident I was witness to not long since, and the relation of it may not be without its use. A lady, a stoutish lady, was driving a pair of black ponies in Lincoln's Inn Fields, in a handsome currie, with the reins to the very ends of the curb-branches, and pulling pretty vigorously; the animals from pain unable to proceed, were disposed to stop and to back, but this not suiting the lady's intentions, she applied the whip pretty smartly to her two little steeds, and a curious scene ensued, for the more she flogged she tightened the reins, for fear of their running away; they turning and twisting their heads about, and not knowing what to do in such an extremity: as whenever they inclined to stop, which was almost as soon as the whip ceased, she was obliged to begin again to flog, to keep them going on; and, what with the exasperated state of the horses, and the lady's getting heated from her exercise of flogging her two ponies, first one and then the other, the scene became ludicrous enough; neither did she at all seem to apprehend the source of her troubles; and, although wishing it, yet I feared to say a word, knowing how ticklish a matter it is to interfere in horse concerns, so left them to their labours; but how it ended I know not, let us hope not tragically. Curbs are bad enough at all times, but to drive from the extremities of the branches is certainly the very height of absurdity, for any single lateral movement of the reins, it is obvious, must have the effect, if it were possible, of twisting or turning the bit round in the mouth on its perpendicular axis; an effect the most abominable and unjust that it is possible to conceive. With the snaffle the horse's head is simply directed by the adverse side cross-piece bending him or drawing him towards the side we wish him to turn to, but, as to the branches of the curb, it is obvious the reins applied at their extremities, can have no corresponding effect to this, but will pinch or wring, and, if it were possible, turn the bit round, as we have said, in his mouth.

I have observed that horses quite gentle and tractable with the snaffle, will become impatient and pulling and fretful with the curb. And I might illustrate this by a case that actually occurred,

and of which I was myself an eye-witness; as it may serve also as a lesson on the subject of shying. A gentleman of my acquaintance had a spirited chesnut blood-mare that used to shy badly, and from fearing the severe infliction of the whip in consequence, had become almost ungovernable; she had broken one man's leg, and the groom to whom it happened refused longer to look after her, so that her owner, a gentleman I was intimate with, was compelled to sell her, and an officer in the army bought her, nor did we at all know what her destination was to be.

Walking one day, a few months after, along Oxford street, near the Pantheon, what should present itself but this very mare, for she was a gallant looking subject, and, above all things was equipped with a lady's side-saddle upon her; her rider had dismounted on some errand or other, and there stood by the mare a servant who held her. On well regarding her, and assuring myself, that I was not mistaken in the subject, I went up and accosted the young man who was holding her, considering it my duty to give them a fair notice of the very dangerous subject they were using; and when I spoke of the desperate vices of the animal, the lad smiled at my fears and apprehensions, and told me the same lady who now rode her had ridden her for three months past, and had constantly used her, and no creature could carry with more gentleness and propriety; and as to shying, she never did anything of the kind now, whatever she might have done. In short, the poor creature, no longer fearing the powerful arm of her former master, who was both passionate and strong, and the severity of his bits, had lost all her vices, which had been kept up, if not entirely produced, by such undue severity, and which entirely subsided on its removal, and even perhaps all jealousy of it, in the service of a new and gentle subject every way so totally different to the former. I had before believed in the doctrine of gentleness producing its like, but had hardly believed it possible that it could have been true when carried so far as in this case it appeared to be.

We have now to make a few remarks on the parts of the mouth subjected to the bits and on which they rest; for, strange as it may appear, it is but too true, that whilst so many treatises have been written on biting, and so many horrid machines invented by venders of the article and others, not one of them has ever deigned to extend his observations to the parts themselves on which their machinery was intended to act: their whole doctrine and discipline seemed engrossed in apprehended correction of vices and of runaways, as though all the rest, the infinitely more numerous body, were of little or no consideration.

We give therefore, for the first time, a representation of these very parts. In Plate I, fig. 1, which is a side view of the exterior of the jaws, is exposed (the mouth being a little opened with the finger and thumb,) the situation of the incisors or front teeth, and next the lower and upper tushes, the former we see much nearer to the incisors than the latter, thus giving them more advantage in combat of rending their adversary, and affording also to man at the same time a more convenient space and greater latitude for the application of the instruments of his guidance and restraint. Neither can we much doubt that, as the animal was given by a benign Providence for the use of man, that such considerations were altogether omitted in his formation, and more especially so as we see no such provisions in other animals.

These void spaces are called **THE BARS**, which extend to the commencement of the grinders, whose presence is marked by a protuberating appearance of the cheeks. We may also note a

broad ridge or wrinkle of skin with a depression behind it, posterior to the corners of the mouth, which has now become permanent from the long continued and severe operation of the bits, the parts being kept continually and violently pursed up and drawn back till they assume this state even when not in use. The mouth a little opened with the finger exposes also the interior of the lips and cheeks, which from red, have become white, hardened, and cartilaginous, through the friction and pressure of the iron, and which thickness, is also of some depth, and without doubt from its rigidity unpleasant enough to the feelings of the animal.

THE TONGUE also, its upper surface is seen rising (for the subject was alive when the view was taken,) much above the jaws, or bars, and even above the extremities or points of the tushes.

The representation, fig. 2, was also made from the same head, (the animal being killed,) and whilst warm, a section was made with a saw precisely where the dark line of fig. 1 appears, and exactly through the parts where the bits usually repose, for it is not possible to obtain any good view of these parts by any other means, the bits being usually drawn or forced so high up within the inclosure of the living mouth, as to be out of sight.

We may now observe into what a relaxed and puckered state the cheeks have been brought by the biting, and also how the tender inside lining has been reduced to a dense, hardened, cartilaginous condition, for this was a coach-horse of about fifteen hands and a half high, and going to be killed on account of the farcy, at about eight or nine years old; the corners of the mouth also were wrinkled, swoln, and stiff, and perhaps in degree painful, from their size and excessive rigidity. Now if I were allowed an opinion in the matter, I should say that the formation of this hard substance should be prevented by all the means in our power, instead of which so little is this thought of, and so indifferent are they to the matter, that not only is the severest use of this abominable pinching engine employed upon them, but that they often leave them for hours together gagged up with a tight bearing-rein to a degree that no power of the arm for any length of time could exact, and this when wholly unemployed, and where there was no occasion for it! crushing also, and spoiling the throat, and sometimes inducing pole-evil by the violent strain induced upon the cervical ligaments. Is this obeying the generous precept that forbids us even to muzzle the ox that is laboring for us? Must we forsooth go further, and destroy the very parts by which we are to lead, guide, and conduct them! Such is modern refinement in the use of these worthy animals. Is it possible such abuse and folly can much longer be permitted to go unnoticed.

A broad plate or lamina of loose skin from the inside of the cheek is seen extending over the right another also over the left bar, and resting upon it, being perfectly white and cartilaginous, and which has been extended and rolled out as it were by the abominable pressure of these irons of the mouth-piece or jives. These flaps or extensions of the internal membrane, we suppose can be withdrawn from this position or be applied to it at the will of the animal. It is, however, but natural to suppose that on the first application of the bits they are not fully possessed of this power or means of defence, but learn it after a time from habit. For if the bits were resting directly on the bars themselves, their impression, there is every reason to believe, would be quite intolerable, at least to a fine thin, blood mouth. The tongue also, we may observe, is occupying a remarkably elevated situation in respect to the bars, higher than one should by *a priori* reasoning have been led to suppose, and if violently forced down by the bits upon the bones

on each side would be liable to be cut through in meeting them, and which has sometimes actually occurred; the central part of it, however, would probably recede within the space between the two jaw-bones, and thus resist disunion, hanging only by a piece, as in this accident it has been often so described. A broadish white line is also distinguishable between the two bones; which is part of the jaw itself, it becoming a solid mass, by the bars uniting, a very little anterior to the place of section.

It would appear that, in the biting of the ancients, the points of their lupata were applied chiefly or solely to the surface of the tongue, and were so placed as to rest upon it. There is one passage, however, in Xenophon, which would seem to favour a different doctrine, and make it doubtful if the points were not resting on the bars. The horse in this way, with them resting on the tongue, would certainly have more chance of avoiding their effects, and an extreme degree of punishment, since the tongue can more easily recede and change its condition as to hardness, and is in itself also less sensible. Some have stated that the cavcons of the ancients were provided with points inside to guide by; but this I suspect was not intended for horses, and has been rather too easily assumed without any sufficient authority.

In the view thus afforded of the interior of the mouth, we are led to notice the singular fact that whilst the outside covering of the skin from pressure and friction will become horny, or throw out horn, as in our corns and bunions, the inside lining here throws out or forms cartilage and not horn, by the same treatment. In the foot we have also a sort of correspondent production in a natural way, for we may observe that although the *keraphylla* in the inside of the hoof are horny, the more internal *podophylla* are truly of a cartilaginous nature. We know horn so formed when pressed upon, is most painful; how cartilage may be in this respect when pressed upon, we are incapable of judging.

It is also a circumstance worthy of remark, and which this figure serves to display, that the two sides of the jaw or bars are not exactly alike in size or height, one being loftier and larger than the other; this must often happen we believe, and will perhaps serve to explain various anomalies that occur in the conduct of the animal during the first use of the bits, and their irregular manner of answering to them, which Xenophon and other nice observers have so often remarked upon in their practice.

To a mouth that a thread would turn, or the slightest movement of the wrist be felt and obeyed is it either justice or fairness to employ such engines as these? and, to speak plainly, it is the dangerous state of the feet, whatever pretences may be advanced, that chiefly causes the necessity for such measures; and, as the real cause of this has been now clearly pointed out and explained, and the means of avoiding it also, it will, it is likely, ere long be removed; so that the biting of the horse, like other arts, may then enjoy its proper rules, from which we ought never to depart, by unnecessary cruelty on the one hand, or committing our safety too much on the other: these are the considerations we must learn to steer between, by avoiding extremes either way, and by knowing in what this safety should best consist.

We see that a horse lashed by an iron chain to the end of the pole of a heavy coach, and at the other end by a similar chain to the splinter bar, and lashed again by chains or straps, or both, to the other horse's head, so that he cannot relieve himself whatever may be his sufferings. Indeed

with all our advantages of superior horses, materials, and workmanship, the horses of the continent, I allude more particularly to those of Germany, appear to draw heavier weights with greater ease than our horses do.

If I might be permitted a conjecture on the cause of this, I should in the first place attribute it to our over-harnessing our horses, and from over-restraint, that the animal has hardly room to act, and his being confined too close to his work. We may also remark that the post-chaise is found to run the lightest of any of our vehicles, except the chair or gig, and that in both these vehicles the point of traction or draft is directly behind him, so as to receive the full force or impression of the great moving power, his hind legs; but how is it with most of our carts, that he is obliged to exert his force laterally, as it were, by a tug-chain, often of only a few inches length, and stuck into the side of an immense shaft, and this perhaps considerably wide of his body, and the chain so short as to be almost at right angles with it. Now, if the other principle in the post-chaise be good, this must be but a very bad one, and a great disadvantage to the horse in his contending with the load.

The waggons in Germany, which carry the heaviest weights I have ever seen, have their frame diminishing downwards, and tapering very much towards the centre, or perch; by which, I apprehend, a less direct pressure of the weight is determined towards the wheels, which by this disposition are less burdened, and are forced less towards the soil than would have been the case had the load been more directly over them. Whether this explains the principle or not, I know not, but lay it before those concerned, for their consideration, the facts being indubitable.

But to return to our biting. The bits appear to have their best effect when the head or face of the horse is carried at about an angle of about  $45^{\circ}$  to the horizon; therefore that bit which affords this angle in the most efficient way, is the best bit, as it is then resting duly upon the bars, and the horse obeys its impression; it becomes therefore, a sort of fundamental position on which perhaps others may be raised or based. For, if through pain or dislike, the nose be tossed into the air, what command have we of him? or if dropped down with his chin to his breast; or if strapt to prevent this, we then have sullenness, angry humours, or perhaps direct rebellion to contend with, all of which are better avoided. And if he arm himself in his own defence, in this attitude, or "crowd himself together, not keeping the due distance which his head, neck, and shoulders should have, he will not be able to lift his legs or put them forward, hardly even so as to see his way; he must then go in a manner equally disagreeable to the spectator, and unsafe to himself and his rider. The true art of biting therefore, consists in getting the horse collected, and accepting the offices of the bit with a due resistance, yet yielding to it; and "this must be done by patience, gentleness, and perseverance, without pain or surprise; but smoothly and gradually requiring no more at first than a gentle submission, and remembering to do nothing to alarm, disturb, or provoke him."

"When a horse can stop readily and with ease, when his head is constant and steady to the bit, and he is light and firm in the hand, and so supple as to be able to obey it in all its movements with ease and readiness, he then gives ample proof that the bit is properly adjusted and fitted to his mouth, and that he is reconciled, and even pleased with the power it exercises over him. On the contrary if he opens his mouth as if he was gagged; if he wreaths and twists his jaws

about; if he draws up his tongue above the mouthpiece, or thrusts it out of his mouth sideways; if he *retains* himself, or runs backward; if he carries his head very low, and endeavours to force the hand; if he fears the impression of the bit, and it has no *appui*; if he tosses his head up and down, or refuses to advance and go forward, interrupting his manège with various disorders; he then gives evident reason to suspect that the bit is not properly adapted to his mouth, and that it offends or hurts it, either inside or out.

“It is also most true, that that horse that is strong and firm in his structure, and endued with gentleness and spirit, is active, and has good legs and feet, can never want a bit whose principal effect is to raise and support his head and foreparts; because he is very able to furnish to himself all the assistance he can need; and, from the concurrence of these properties, will most probably have received from nature a proper disposition and a good mouth. That horse, likewise, whose forehead is long and elegantly turned, with a lean and small head, and whose jaws at the setting on of the head are wide and open, can never call for a bit which is particularly constructed to fix his head in a posture in which nature has placed it before. Again, that horse whose mouth is large and deep, whose bars have a proper degree of feeling, neither too hard, nor too tender; with a brisk, fine tongue; small and thin lips, with the beard well made, neither too delicate, nor yet too callous, will never require a bit particularly small, nor one calculated to awe and restrain him beyond the common degree; nor one with the liberty or upset, wherein to lodge the tongue, larger than usual; nor with a curb stricter or more severe than it should be. Happy, indeed, would horsemen be, were it easy to find horses possessed of these useful and noble qualities; but this is seldom their lot, and it is from the want of some, or sometimes of all these requisites, that the skilful horseman is called upon to remedy by art, these faults, and supply the defects of nature, when she proves perverse and unkind.”

It is no more than natural to expect that those who make or vend bits should magnify the dangers of riding, or that those employed in stables should often recommend and procure the most complicated; but assuredly the worst accidents have happened when these pretended measures of precaution have been used; the truth of which will be plainly seen by the several examples we have just given, as by very many others we could adduce.

Riding will always with the inexperienced be attended with risks which are inevitable; but well assured are we that long spurs and long bits, by their unguarded or accidental operation upon the animal, have been a more fruitful source of accidents than would have taken place without them; inciting the horse to acts he would not otherwise have committed. A case of sudden fright or alarm is one of the worst that we have to contemplate or that can happen; and even then we should not doubt, from what we know and have seen, that the simple machinery of the snaffle, or the twisted snaffle, is more likely to come out of the affair without mischief than the more punishing and complicated machinery we have been describing. And shying horses, if severely punished, are ever apt to connect such punishment with the object itself, and not at all to view it as a merited correction for the shying, which makes this mode of treating the evil worse than useless, and on which we may, if permitted, have a few words of precaution to give on a future occasion.

I have been often witness to an extraordinary degree of irritation and impatience of the horse

and of his running to and fro, and pulling heedlessly along into all sorts of danger, whilst using the curb, when by merely shifting the reins to the cheek, or using a snaffle, the horse has gone quietly enough; and more than one or two of my friends and acquaintance have been so satisfied of this truth, by being made witnesses to it, that they have ever after adopted the doctrine, but who were before intending to pursue rougher measures with their horses. A terrific sight certainly is a horse tearing away with his rider, and a still worse with his driver, and such will at times ever happen perhaps; yet I am firmly of opinion that in a general way these violent and painful machines are better kept out of the way in such cases. Though we admit there may be cases occur in which their use might, with some kind of mouths, possibly be advantageously employed, but only rarely, and certainly not at all in so general a way as at present is apprehended.

The bit-maker's art in the beginning was without question a very simple art, and its charges and profits moderate; but with the Italian biting, commenced the reign of violence and terror, and of charges too, before unthought of; and which times of simplicity and mild measures we heartily could desire to see once more return, with all their concomitant advantages. At present, what with his jaws crushed with the iron levers, and what with the artifices of the smiths, in barring up his feet from expansion by iron bars called shoes, and by these and the nails reducing them in size, and to the most rigid and inflexible state: what with cutting away the soles of his feet, and the horn of those other parts that the Almighty in his goodness has given him to protect him from the hard bodies of the road; what with spurs, whips, thongs, chains, and straps, it is indeed with him an iron age, and in a literal and no metaphoric sense of the term. What animal is there that could possibly deserve such criminal barbarity, how much less then, one that is daily and hourly so essentially contributing to our pleasures and interests?

Berenger, in speaking of the branches of the curb, says that they should be "flexible and long;" now as to flexibility, I have never seen any such, they are all made of hardened steel, and much too stiff and short to have any such property, and to bend and be flexible, they must have had a length and thinness that would have made them most ungain and preposterous; it is therefore only a delusion to suppose such a thing, that the notion ought to be entirely banished, as leading us to imagine an indulgence where in fact there is none.

And here we may just observe that it will be found sometimes advantageous and pleasant to induce novel and fresh impressions upon the horse's mouth, by a change of the bits in some way or other, as a continued sameness in their impression is fatiguing, and sometimes also it loses its full effect from it. A rider will suggest various ways of doing this; as by changing only a hole or half a hole in the length of the headstall, by which the precise point of bearing of the bit upon the bars will be changed; or a variety of bits may be kept for this purpose, some larger, some less, some rougher, and others smoother, or of different figures also; without, however, doing it in a way to annoy or offend the horse. A friend of mine told me that for this purpose he sometimes let fall one of the four reins (as he rode with both bits at a time,) using only three, dropping the curb rein on one side, which he said served to amuse the horse, and to relieve and render him more attentive to the impression of the bits. It is the effect of novel impressions always for a time to engage attention, so that the changing of bits to severer gets even them into credit;



whereas novel impressions may by almost any sort of change be induced, without resorting to violence or cruelty.

In my early days at the Veterinary College I was not a little puzzled, in examining the mouth and teeth of horses, to find the tushes worn away in various singular manners, the worn surfaces always presenting an extreme polish and smoothness; looking at the time no farther than the natural wear of the teeth, I was quite at a loss to account for it, and the more so as the tushes in the upper and lower jaw were not nearly opposite, so as to have the power of coming in contact, or of wearing each other. Afterwards coming to contemplate the use and effects of the bits upon the mouth, I perceived the solution of the difficulty, from the motions which the bits have upon these teeth, urged by the tongue and lips. It became evident also that if the jaws had been so constructed as to bring these tushes into constant use, the wear would soon have removed them, and the animal would have thereby been deprived of his means of offensive warfare, for these being given only to the males, would seem to point out this as their chief office: they are however placed too far back to be of much use in this way, and may be rather considered therefore as rudiments of those parts which in other quadrupeds of the more ferocious kind, have ruthless power, viz. the true laniarii, or renders of flesh, for in real mastication it is very obvious they could have little or no effect.

Another injustice to the animal in the use of the bits, and than which there is none perhaps can evince more ignorance of good horsemanship, is the practice of continually snatching and jugging the bits in the horse's mouth;\* it is absurdly making them to perform the office of the whip, and which any considerate driver would never employ, as the bits cannot be kept too steadily and easily applied to the mouth, if we wish to keep it fresh and excitable. A good driver also will take especial care as he tightens one rein for any purpose to one side, to slacken as much the other, a circumstance not generally adverted to, and which it must be obvious, if omitted, the mouth will be cramped and galled by a double restraint.

It may not be useless to notice another common offence against the rules of good horsemanship, that of giving the horse a cut with the whip at starting off, instead of accustoming him to the chirp, or to the slackening of the rein to him, or speaking to him in some way: which cut, continually practised, has a bad effect, since, if he be a spirited horse, it will occasion him to start off before he is desired, in order to avoid the expected stripe. It destroys also that innate pride of the animal, that at the first scorns to receive the lash; and of many a generous steed makes in the end, from such abuse, a careless slug. These things seen in print will be on their way to a reformation, it is to be hoped, which otherwise it would take a longer time to do, if at all.

It is also asserted, and we believe with truth, that there are men employed about horses so extremely ignorant of the nature of bits, and especially of the curb, as to imagine it designed for holding the horse up by, not by the squeeze and punishment it can inflict, but by its main force and mechanical purchase upon the jaw! I myself have heard coachmen maintain that they were a great support to a horse, as though a horse might legally be sustained by his jaws instead of

\* A humorous friend of mine calls these jugging operators, dentists; on requiring of him the reason of this appellation, he replied that they always appeared to him to be jerking out the horse's teeth.

his feet; to such a pitch of indifference do they get about this tender part. Indeed, men are often very suddenly thrown into situations and offices about the horse, that they are quite incapable of properly fulfilling, and do such things with them as would make one shudder, and which plainly indicates the pressing necessity there is for the institution of horse-schools in every city and large town, for due instruction in the use of the horse; and without a certificate of qualification, they should not receive employ, or the full reward of their labour from the public. It is indeed astonishing and admirable often to see the patience of this noble high-minded and generous creature, under inflictions from ignorance of the most abominable kind, and of his immediately forgiving such gross injuries.

We daily see horses with only one bit in their mouths performing every duty, and so well, that of its competence there can be no reasonable doubt; our only wish is to see it become universal, and upon an acknowledged principle, and not by chance, as at the present; and such, there is no doubt, will in time be the case. We also sometimes see, from time to time, cart-horses coming from the country with their loads, and without any bits whatever in their mouths; working in cavesons or headstals only, with a musrole; and they appear to do their work to the full as steadily as horses with two or three bits. I have been led to suppose, when this was done by the farmers, that it was from their experiencing the injuries done to their horses' mouths by the abuse of the bits, and especially by the bearing reins, grossly abused as they often are, galling and ulcerating their mouths, applied with the utmost ferocity from mere whim or fancy, or a tyrannical disposition; or from egregiously supposing a semicircle was the proper figure for a horse's neck. For the last twenty or thirty years, I have observed the biting to be getting gradually more and more severe; and have thought also whether it might not have been occasioned by our exposure of the state of their feet from the effects of shoeing;\* and from their being now made fully aware of the danger, and that it was real which had always before been made light of, and was often imputed and treated solely as being the want of jockeyship in the rider or driver. Some there are also who talk of holding a horse "*tight in hand*" with these bits, with great glee; and where this is done by one who knows nothing of the effects of one bit from another, what must be the miserable consequence? though it will not be so difficult to imagine, how the patience of the poor animal must be brought to trial on such occasions! A flesh-hook through the nose would guide a horse without doubt, and he would also there is no doubt be obedient to it, but would it be fair or decent to resort to such measures; yet we really in these pinching machines do worse, as to the actual pain they inflict, though not in appearance so brutal. We saw the other day a heavily loaded errand-cart, and in it a poor feeble skeleton of a horse, and with his face duly gibbeted and "*fringed*" with long iron rods and chains applied to his jaws, and, forsooth, affixed to a tense bearing-rein! There could not in this case, one should apprehend, have been very much hazard of his running away at any rate, for he was greatly overloaded, and his poor ears flapping about his head at every step he took, the surest indication of extreme fatigue and weakness; and what was most curious, to crown the whole, the carter's wife had in the generosity of her heart supplied white linen covers and white tassels to his ears, lest perchance the

\* See Podophora; or the ruinous Effects of the Principle of the Common Shoe.—Renshaw, 356, Strand.

fies should in any manner incommode or be troublesome to him. Such are the tender mercies of the cruel.

The French also are not much better masters to their horses than the English, if we may judge from the common draft service in the Parisian capital, as also by their short stages, cabriolets, and fiacres. They have however, I think, some little advantage over us in using three horses to their omnibuses, and also in their stages to the coast and the interior, which, being often under government direction, prevent thereby a large portion of very gross abuse. Their cabriolet-horses, however, in regard to the use of the bearing-rein, are the most severely bitted of any horses I ever saw, and the worst shod, at least at the time of my visit there in 1828, and their heavy draft service by waggons is most grossly bad, as well by the enormously cumbrous machines they employ, as also by the immense size and weight of their huge collars, some exceeding, as they admitted to me, sixty pounds in weight, making of itself a load for the animal's fore parts, without any addition, and which soon become a very hot-bed for dandrif, filth, vermin, and mange-scabs, and forsooth decorated in all due formality outside with heavy, painted wooden boards for hames. This public mention of it, although at a distance, let us hope may be operating so as in time to bring about some degree of relief from so extraordinary and unnecessary an infliction.

We may often notice also that the coachman driving by his reins to the ends of the branches finds them so truly awkward for guiding the animal, that he is obliged to resort, whenever he wants to make a sudden turn, to giving the horse a cut with the whip, that is, the horse on the side to which he wants to go; so that, instead of both being employed in making the turn, one has to drag the other. Nothing of this sort would be at all necessary if proper bits were employed. The horse, at first, hardly understands this description of discipline, but by practice, as in almost all other cases, in time he gets used to it, such is his amazing patience and docility. I really believe no modern coachman could drive a Roman quadriga, where four horses were placed abreast, with such machinery as this, as the one horse in this case would have to bear away three instead of one.

If this bit which was the invention of Italy, (a nation perhaps the most debased in the world as to the treatment of their animals, I allude more particularly to the Neapolitan states), had been called the jaw-wrench, the scrape-palate, or the jaw-crush, or some such title designating its real quality and effects, its true nature would have long since been seen, and its general use rejected much earlier, and but for fine names, which are often great delusions, it would at least have been at any rate more warily entered upon; for most certain it is, that at least ninety-nine times in a hundred it is perfectly unnecessary. Should we be justified, I would ask, in placing a gallows before every man's door, because there might be some rogues in society? or why should we call this *the bit*, as though exclusively entitled to that name, as Berenger has done, although certainly an abuse of the word, and especially so when he himself condemns it.

It is also a surprising fact how some horses of high spirit will sometimes resist these terrible levers, running about with them often most wildly hither and thither uncontrolled, and into all sorts of danger, disregarding the rider's safety and their own, as though indignant at such unjustifiable treatment, and as if they were determined, in spite of all suffering, not to obey them;

the fact we have often seen; and it may perhaps be difficult to explain it, unless it be that their extreme aversion calls up an unusual degree of courage to disregard and disobey them. On resorting to the cheek-loop, or the applying of the snaffle, all this violence has immediately disappeared. It should be also seen that, in stage-coaches, as he is chained to the pole one way, to the traces and splinter-bar another; and again, his head is tied and strapped to the head of the other horse; so must he of necessity endure whatever they choose to inflict upon him, however painful, inconsistent, or absurd. Mute in his griefs, he bears his wrongs nobly in silence, and should therefore in every man find a tongue and a protector; had he been permitted to cry out, like some other of our animals, how would our streets have been filled with his wailings!

One could wish also to see this art, which is ever changing alternately from good to bad, and from bad to worse, or better, as it may chance to be, under the capricious systems of interest and fashion, fixed immoveably on some general acknowledged solid principles of sense and reason.

In conclusion, for our part, we do not see why a simple chain of three or five links should not constitute a very good bit for a horse for nearly all purposes; the two end links might be made solid towards their extremity, and be perforated for carrying the cross-pieces, made either of boxwood, steel, or iron, or which would be more simple and answer equally well, two handsome, large, well-finished rings of brass or steel. And if ornament and show should be desired, this kind of bit would be found very susceptible of it. It is only necessary to flatten these rings and make perforations for receiving ornaments of silver, gold, ivory, or rosettes of worsted, or silk; also a radius proceeding to the centre from the periphery, or a semi-circular arch united to it by its two extremities, would carry very conveniently these objects, or any round, square, or other figured knobs or devices of any kind;—or these radii in any number might be made to project beyond the periphery of the ring, and be formed into arrow-heads, crosses, or other fanciful devices, affording abundant scope, where desirable, for the ingenuity of the artist and for his recompence. It would also be one of the most lasting and strongest bits that could be devised, much exceeding in this respect the common snaffle, which is vastly liable, even if great care be taken, to get injured, rusting, and spoiling at the hinge, the slender pin passing through a hollow pipe, making it next to impossible to get at or cleanse it, and becoming foul, soon decays.

The middle link, for we think it best to have an uneven number, we propose to fill in, or make of a solid flat piece of iron of a proper thickness, and to be perforated, if severity be thought necessary, with one, two, or more holes, for receiving spikes, or points, to be riveted or screwed into it, and removable at pleasure; these points to be about a quarter or three-eighths of an inch long, obtuse or sharp, as they should be found best to answer the individual subject they are intended for.

The great simplicity, strength, cheapness, and durability of this bit, which is almost endless, the ease with which it is cleaned and kept in order, are surely sufficient claims for its general adoption. It may have its enemies however on these very accounts. Also, it cannot very well be abused or misunderstood as those complex bits continually are. It is also much lighter for the animal than the unwieldy, clumsy, unsightly machinery we constantly see in use. I propose to distinguish this bit by the name of the *Chain bit*.

There are already a few years since the former edition of this work was published, and since

which a considerable number of these bits have been manufactured, and trial made of them, and our expectations have been in no respect disappointed. In no one instance of a great many have they been rejected, or even complained of, but have given, on the contrary, much delight. A representation of this bit in its simplest state, on one side, and with the semi-circular arc on the other, is seen in plate 2, fig. 9.

It has been tried in various hands, and by men of skill and science in the use of the horse, and also by professed masters of the arts of the manège, from one of whom, my worthy friend, Robert Dawson, of Gray's-inn-lane, riding-master at the late light-horse volunteers, and teacher of riding, I have received many valuable communications upon it, and which have been of so enlightened and scientific a nature, that I cannot forbear the insertion of a portion of them here, as they were made with more practical knowledge and experience than I can presume to.

He states in one of these communications, "that he has tried the chain-bit with the most agreeable results, and that it produced a satisfactory carriage of the horses' head, and that it controlled the movements of the horse himself without annoyance, and more agreeably than the other bits appeared to do." The experiment he afterwards made before several of his friends and others, by an actual trial on five or six different horses in succession; one of these trials indeed I was myself witness to, with several of my acquaintance. He first used the curb, next the snaffle, and then the chain-bit. The first subject of experiment, a mare evidently carried her head from the neck in a forced and constrained attitude with the curb, tossing her head and throwing up her nose, and occasionally the reverse of this, apparently for relief, by pushing her nose down towards her chest; twisting her jaws about from side to side, evidently endeavouring to prevent the bit from having its full effect upon her bars. The snaffle was a twisted one, and rather sharp, with which she carried herself better in all respects, but by no means so pleasantly and agreeably as she did afterwards with the chain-bit, with which there was the expression of a satisfied and cheerful acquiescence; and this was proved, not by the riding-master himself, but by several of the gentlemen present mounting her, and also three other horses in succession after her, in order to confirm these appearances on several subjects. It was also remarked by the master, that the chain on the lateral action of the reins, by the alternate position of the links, had the property of searching the bars and removing the lips; and that the links being large and very smooth, did not produce any inconvenient annoyance; whereas, jeives, or cannons, carried the lips in with them over the bars, nor brought them back on a lateral movement of the bit; so that, without being too severe, it appeared to operate with more effect than those bits, a circumstance hardly intended or looked for, in its formation. Nor did there appear any danger of the large cheek-ring, or upochal, being drawn through the mouth. The point also of traction of the reins upon the upochal was found to shift in the moment of draft, occasioning a less sudden, and therefore more agreeable and moderated impression upon the mouth, which appeared an evident advantage by his manner of responding to it. In this chain-bit the upochal, which is large, executes four different offices; it carries the mouth-piece; it suspends the bits in the mouth by means of the headstal; it carries the reins going to the hand; and it serves well the purpose of a cross-piece; and finally, a fifth purpose, if it be desired, that of affording a place for the hook-rein, though its easy and tempting liability to abuse makes it generally worse than useless;

benumbing the parts by its incessant pressure, and extinguishing entirely the appui, that agreeable yielding with resistance of the jaw to the hand, that is almost partaking in the delicacy of an intellectual operation, and is as the rudder in navigation, to which the ancients were fond of comparing it; it gives to riding all its zest and pleasure, and often its safety also; but which once destroyed, is with great difficulty, perhaps never, completely restored again.

The above bit has however been used to our certain knowledge, not only with the saddle-horse, but in double and single harness, with the most satisfactory results, and without the cumber of that superfluous addition, the hook-rein. Another advantage also pointed out to us was, that the flexibility of this kind of bit permitted it fully to embrace the jaw on both sides, nearly alike, whether that was made by nature even or uneven, more so than any straight inflexible jeive would have done. He farther informed me, that in a very noble horse that he had under his care for education, of a higher stature than the middle size of horses, and which he could hardly ever get to the trot, breaking nearly always from the walk into the canter, or gallop, and continually carrying his nose aloft in the air; that this horse fell without difficulty into a most excellent trot on the applying this bit to him, and without his head being at all carried up to avert the effects of it upon the mouth.

On my first suggesting this bit, I should have been very well satisfied had it answered every purpose as well as the other bits in common use, as it would then have had the advantage of greater simplicity, mildness, and more extended duration; but on actual trial, we found it to possess other properties we had not looked for, and which rendered it the more desirable. As to the use of points to the *tongue-plate*, for making a severer impression, so well has it acted in nearly one hundred instances without them, that we have not hitherto had occasion to employ them in any case, and believe they will rarely be necessary. It must be acknowledged, however, that such is the vile hardening and deadening operation of the curb or lever bit, upon the mouth, that after its long use upon these parts, and the formation of cartilage if considerable, that such horses will pull and be very uncomfortable, in many cases, on finding that a milder bit is applied to them; but by degrees, and with temperate management, will at last, most of them, become obedient to it; but some there are possibly, that no time can cure in this respect.

My friend, R. D., in a subsequent communication, says—"The third experiment I made was with a horse that with the lever bit used to go very short in his action, and carried his head very much to his chest, evidently from impatience of its effects, often tossing his head into the air, and throwing back the froth of his mouth over me; he also was difficult to be stopped in the gallop. With using the chain-bit, he would lengthen his pace, and carry his head in its proper place, and be stopped in full gallop by two or three draws of the rein." "This bit also never appears to produce any greater flow of froth, or of saliva, than what is proper and convenient;" and he further says—"It is from a full conviction of the many advantages attending this new and simple mode of biting, that I am induced to come forward and give my testimony to its effects, and the probable consequences that will arise from the general adoption of so desirable a mode of biting, which may in future remove a large amount of suffering and of cruelty inflicted upon the horse."

As I cannot, if I would, afford to be diffuse, on account of the expence of printing, and the

little hope at present of a sale for my labours, so I quit rather suddenly this present object of the bit, in order in a brief way to advert to a circumstance of no minor importance, in respect to this art, and which appears to have lain dormant and unattended to for the long period of a thousand, if not fifteen hundred years, but which appears to have been pretty well understood, though not written upon, during the more enlightened eras of the Greek and Roman empires, and which respects not the iron part of the bit that enters into the mouth in biting, but the very opposite extremity of the apparatus, viz. that which rests upon the pole, or behind the ears; a part of the horse scarcely less sensible, and in some cases indeed much more so, as it would appear, than the jaws themselves, and which I now very much wish to draw the public attention to.

To found one note upon another is a thing hardly admissible in writing, or to fix the text to a preceding note, is hardly less so; but of such sterling importance appears this matter, that we seem compelled, as it were, by its being the lesser evil, to adopt the latter course, rather than prolong a note, already very long, we allude to the note at page 35, and to which we must again refer the reader's particular attention. On exhibiting my suspicions respecting occipital pressure, contained in that note, to my friend Dawson, to whose kind services I have before had occasion to allude—he, on perusing and considering it, informed me, that he possessed a horse that uniformly resisted and carried himself badly with the curb bit, and which he had always attributed to its severity; that he however now began to doubt, from the above remarks, whether it might not be more likely to be occasioned by the forcible pressure upon the occipital, or atlantal region rather, and farther that the matter admitted of proof, by the animal being put to the test of the actual experiment. He had also a mare, that had always shewn a most inveterate dislike to the curb, on which also an experiment was proposed to be made. The suggestion was readily assented to, and the next morning, in the Light-Horse Volunteers' riding-house, in Gray's-inn lane, we met for this purpose.

The horse being first led out into the school, was mounted by my friend; a snaffle and curb bit being put into his mouth, I requested him first to make use of the snaffle only, that I might see with more exactness what took place when these two instruments were both employed in the mouth together, and was rather surprised on looking into the mouth, to observe, that when the snaffle was pulled, instead of its acting by itself upon the bars, as we had always supposed, independently and beyond the curb, that instead of this, he had, by the power of his tongue apparently, brought it forward in the mouth anterior to the upset of the curb, and on the snaffle-rein being pulled at, its whole impression was seen to be exerted upon the upset of the curb, the tongue having risen behind it at such a considerable angle, as that the upset was lying against its upper surface, the tongue not at all received into its cavity, as was supposed, and that this took place with the tongue held at such an elevation as that the bars were positively not reached by either snaffle or curb; but the tongue, hardened and raised, no doubt by its muscles, was carrying the whole apparatus on its surface, contrary to all our previous notions. And although we endeavoured, by pulling the rein somewhat rudely, we could not dislodge the snaffle-bit from this position; so that the upset was in reality protecting the tongue, and both together the bars also, which remained untouched, and so defended the horse carried his

head very properly at an angle of about 45° round the riding-house. So that it is all a farce, as I had long suspected, that this upset really receives the tongue within it, it being more than twice or thrice too large for such an admission.

We then loosed the snaffle-rein entirely, letting it fall upon the neck, so as to have no effect whatever, and took up the curb-rein. He now, in going round the school, began to raise his nose in the air, which he continued to do for some time; but after awhile took to the other mode of defence, that of thrusting his nose downwards towards his chest, and this he persisted in. We then proposed to make the experiment of releasing the headstal from all pressure upon the occipital, or atlantal region rather, it being opposite the atlas bone, by pulling with the hand the occipital strap, and frontlet also with it, back over his ears, on to the encolure, or arch of the neck, leaving the bits, in other respects, in the mouth as they were before. He soon found his release from suffering, by the removal from pressure of the occipital strap, and carried his head so as fairly to accept or take the proper operation of the bits upon the bars, and even of the curb, which was not a very severe one; thereby exhibiting most convincingly, that it was not the bits in the mouth so much, as the excessive pressure upon the occiput, or rather open part of the atlas, exposing the spinal chord, that had annoyed him, and had given him all this pain and dislike, and which explained to me the cause of many a fierce battle I had seen, between the horseman and his horse, even in riding-schools, but of which I never could till now in the least conjecture the true cause.

We now brought forth the mare to see how she would act under similar circumstances. This mare had always shown a most unconquerable aversion to the curb; and we remarked she was rather fully made, indeed swoln, on one side, about the lateral parts of the atlas, on the off side. On trying her with the snaffle, she carried her head pretty fairly round the school; and we remarked a circumstance of some import, regarding these snaffle-reins being pulled, they drew the bits upwards in the mouth, and consequently relaxed the side-straps of the headstal, and released her from much, or almost any, pressure against the occiput, which release would sufficiently account for her better carriage with this bit. We now wished to see how she would be affected by the curb-rein; and on drawing this rein pretty smartly, she in a very little time took to boring with her nose down to her sternum, nor could any thing raise her head. We then also discovered, on looking at the action of this curb-bit, that the ultra-central parts of it, that is, the check-piece, was really describing a circle round the centre, or mouth-piece, whose extremity described a radius of four inches, or more, and therefore of considerable power upon the headstal attached to it, so that when the reins, fastened to the lower end of the branches, were pulled, the headstal was powerfully drawn down upon the above tender point, being the very opposite effect to that of the snaffle, and therefore vastly contributing to render more offensive this detestable mode of biting, and which it is strange no one has appeared to have attended to or considered before; for although by prescription, or taught empirically, or by the routine of mere practice, the ancients seemed to have known these effects, it does not appear that they truly knew the cause; at least we have not yet seen any proof of it in their writings; and the discovery of which, it is to be hoped, may now open a new era in the conducting and management of this animal.

We now wished to see if it was as in the other case, the irritation of the bars of her mouth,



or of the *atlantal hiatus*, that was the source of her suffering. The headstal, that is the occipital strap, was now shifted right back upon the arch of the neck, when her course being continued round the school, she pretty immediately raised her head, and carried it to the proper angle, so that the bits would have their due pressure and effects upon her bars, and apparently with a cheerful feeling of acquiescence; demonstrating most clearly that it had been from the pain she had experienced from pressure upon this very delicate part, more so even than upon the bars of her mouth. As to the swelling we have just noticed on the side of the atlas, there was every reason to believe was occasioned by some former injudicious attempts to compel her by forcible measures to bear the bits, as it was supposed at least; but was in reality the miserable impression made on these most sentient parts; a sort of abscess had apparently formed in consequence, which in the end had become callosed.

In order that these facts may never sink into oblivion again, and, as it was remarked of old, that what passes to the sensorium through the eye, is quicker felt and longer retained than by any of the other avenues of sense; so there is subjoined a plate, indicating the actual condition, or structure rather, of these parts in the horse; and that there might be no mistake, represented as large as life; see plate 3, where the part marked *hiatus atlanteus*, gives the precise appearance this part makes in a full-sized head, where the gap, or exposure without bone of the spinal chord, and at its very base and origin, is so considerable as to satisfy any one of the misery of much pressure upon these parts, especially if the theca, or sheath of the chord be at all in an inflamed state, by which its sensibility is greatly increased; and if the parts directly over this interval should chance to be unusually tumid in figure, so will they then convey a greater degree of pressure than usual, to the parts immediately beneath.

There can be no reasonable doubt that they suffer often great inconvenience from the weight of a heavy log of wood, used in fastening them up in the stable, but which, if they expressed ever so great a dislike to, would hardly be attended to or understood, otherwise than by a scolding, or procuring them the whip or fork-handle.\* At Fig. 11 is seen the *occipital bone*. 51, 51, the atlas. 2, The cerebellum, and arbor vitæ. 5, The spinal chord. 13, The basillary process of the occipital bone. 52, The second vertebra, or dentator. 9, The pineal gland, &c.†

It is obvious these parts, from the absence of bone to so great an extent, would be liable easily to be impressed and indented, and especially if a round body, such as a chord, lodged strongly upon them; therefore a flat web, and of considerable width, must be resorted to, or these parts must absolutely be pressed upon injuriously; but more skill and knowledge would be shown, as by the ancients, in avoiding it altogether, by going to the encolure.

\* Some of my friends favourable to the spread of this kind of knowledge have removed from their horses in the stable the headstal that goes behind the ears, and substituted for it a neck-band over the dentator, or second vertebra; having a ring in front which connects with the musrole, and placed about one third of the distance from the eyes to the end of the nose. These gentlemen expressed themselves well satisfied with the change, and that it seemed to them more agreeable to the horses, as well as more secure. The log was suspended from the above ring, of the weight from two to three pounds of iron, and working in a recess boarded up from the litter, the chord or strap passing over a small roller, easily acting, prevented the possibility of its entangling the horse's legs, a most fatal source of mischief.

† The whole head of the horse, in two magnificent well colored sections, as large as life, by Kirtland, done from a preparation made by me about thirty years ago, with a description of the parts, may be had of the author, or Renshaw, No. 356, Strand, at the moderate price of £1 the two, with a description; or in quarto covers, half-bound, price £1. 5s., an indispensable acquisition to all concerned in the study of horses.

We next proceeded to the getting made a headstal, after the Greek and Roman fashion, to reach backwards to the neck, instead of its embracing the base of the ears, and with the frontlet also brought half-way down between the ears and eyes, instead of its binding up the throat and damaging the windpipe, it merely rested loosely upon the swell of the lower jaw, answering there efficiently every purpose designed by it. This frontlet was formed of one piece with the throat-lash, and crossed the lateral strap of the headstal at nearly right angles, or rather was inclining a few degrees upwards towards the throat, being fastened to the above strap by a stitching, which was ornamented outside at this place of crossing with a metal or leathern button. The musrole was also fitted on very loosely round the jaws, in the place we see it fitted in Roman biting, about three or four inches higher up than the corner of the mouth.\*

The whole apparatus, when fitted on the horse, had a light, elegant appearance, and what was more, of comfort and science; and on its being weighed in a scale, was found to be little better than a pound and a half weight. We next promiscuously took from the wall of the stable one of the common head-gear for a coach-horse, having all its side-irons, loops, chains, mouth-pieces, upsets, straps, rollers, hook-rein, and tag, for distorting its course, loaded with heavy brass scales, as though for war; all this machinery, with its leathers hardened and swollen from the continual application of grease to them, when placed in the scale weighed between five and six pounds; and all this was to rest by a narrow strap, directly over the spinal or atlantal hiatus! need we be at a loss in accounting for the frequent occurrence of apoplexies and sudden deaths, and divers other anomalous and hitherto almost indefinable affections of the brain, and spinal chord, and its investing membranes, when such a weight as this was lodging directly upon a part so delicate, nay, almost mortal, and urged against it at times with the force of a short lever. I believe we shall now be enabled to throw considerable new light on these hitherto puzzling cases.

So painfully affecting to the horse indeed, is any violence committed to this tender region, that I myself once saw a stout horse of nearly sixteen hands high felled to the ground by the stroke of the handle of a small riding hand-whip, not larger than my finger; it happened indeed

\* It may not be altogether foreign to our present purpose to relate in this place an anecdote respecting nose-bands, to put juvenile performers on their guard, where they find them employed with the headstal, at inns and other places, for the part is requiring more attention than is generally given to it, as the following adventure may serve to illustrate:

Riding one day from town to Hampton-Court, I there dismounted to refresh myself, and also my horse, which was led into the stable for this purpose; and his feed, as was my custom, I saw placed before him, giving him a little water, leaving the rest till he had finished his meal. Having taken my lunch, I again returned to the stable to look after my nag, and give him the remainder of his water; but, to my surprise, found he had not done his oats, so retired and left him awhile; when returning some half-hour after, and still finding his oats before him, and uneaten, and knowing him to be a pretty good trencherman, I began to look about for the cause, and casting my eye casually on his headstal and its nose-band, discovered that it had been rendered, perhaps made so, or by successive mendings reduced so small and tight, that the horse could not open his jaws—of course could not feed;—the ostler perhaps thinking in his wisdom, so long as it would go on his head, that was sufficient, not carrying his ideas so far as to the contingency of any action of this sort. I soon had it off, and to work he went with his mill, and quickly the oats disappeared; and my eyes were awakened to an abuse which had never before fallen in my way to notice, but might often happen, and had happened, I have no doubt, to many a poor beast before mine, who would be led to his work again without his meal, and exhibiting any weakness or ill-temper in consequence, would probably only have it met by stripes, or worse usage, and which might eventually have created a lasting dislike between the man and his animal.

to myself, in Hyde Park, the animal falling on his knees, and so badly damaging them, that it was thought, every thing considered, best to destroy him.

This tenderness, indeed, of the part, will account for many a resolute horse contending stoutly against such measures, in a way that often astonished coachmen and spectators, who never once in the least conjectured from whence or from what cause it proceeded.

The above accident in Hyde Park indeed, I may confess, happened unfortunately to myself; and I wish by this public exposure of it, that it may in some degree expiate the offence, having been ever very much attached to these animals, and therefore felt more severely the imprudence and folly of so thoughtless and intemperate an act, which, independently of these painful reflections, cost me dear enough, for the horse, a fine creature, was worth between forty and fifty pounds, but was so dreadfully injured that he was obliged, as I have said, to be destroyed. This painful narrative may have its use in putting others more on their guard against acts of violence towards these, for the most part, worthy, but at times, trying creatures. To make this confession a plenary one, I may also state, that his offence was a swerving and endeavouring to rub my legs against the gate-posts of the entrance of Hyde Park, perhaps from mere playfulness, certainly from thoughtlessness and want of care and attention on my part. A most useful volume to young beginners would be a collection of similar acknowledgments, especially if fairly related, and without embellishment or disguise of any kind. I knew the late famous Lord Chancellor, Thurlow, to have had a similar accident from a blow of the kind, given in haste, for his horse's tripping, in going along Holborn. It is related that in India, where elephants are employed in war, if by the missiles of the enemy they become ungovernable and dangerous, a man placed over the neck of the animal, drives with a hammer a nail, provided for the purpose, into this tender part, and he immediately falls lifeless to the ground.

The head of Aurelius's horse, given at page 17, 18, is seen also similarly accoutred in respect of the headstal, so that this practice certainly extended to the reign of the Antonines, from which period Gibbon begins his History of the Decline and Fall of this great empire. But in the sculptured figures of the column, inscribed to the Emperor Theodosius the younger, at Constantinople, and illustrated by Menetrius, we observe that the headstals are everywhere resting in the common place, close behind the ears. It may, however, have been an inadvertence of the copyist, prejudiced by modern custom, and thinking this the proper place for them. If this monument still exists, it would not be difficult to ascertain the truth in this matter.

It would now be difficult to imagine or apprehend what may have been the amount of their suffering, from this very unscientific mode of harnessing them, and how many a painful infliction they endured before they submitted to it, independent of the pain arising from the act itself by the compression of these tender parts; for any resistance, where the cause of it was not seen, would immediately be set down for obstinacy, and be treated accordingly.

A thousand years of bitter persecution did this animal endure from his shoeing, before it was discovered that his feet were elastic, or that an iron ring and nails, falsely named a shoe, by pinioning the hoof too rigidly, was subversive of this very natural property. His jaws also were next applied to in like manner with abundance of iron, not to mitigate the sufferings of his feet, but by a severer kind of infliction on tenderer parts to cover up and make it less perceivable,

which, if not the true source and origin of these lever-bits we have been describing, at least encouraged their use, and his shoes became the cause also of abundant scourgings for defects in his going, for which the poor sufferer was in no respect to blame. Though far from destitute of feelings and of gratitude also for kind offices, in receiving such punishment he must have felt severely the ingratitude and injustice of it.

It is also harrowing to the feelings of any one not absolutely hardened by habit and custom to see that his miseries are often increasing with his increasing age, although by his past labours and services he may be said to have twenty-fold earned his life and cost, and to have obtained the right of dismissal from severe labour, or at least entitled to a merciful and easy death; yet often is he sold in this condition for a few shillings to the besotted and inconsiderate, and is again exposed to the hardest of labour, in his debilitated condition, and of the very severest and most ungenerous kind. Is not this taking an unfair advantage of the defenceless, and is it not disobeying the mild precept of his Almighty Creator and giver, of "Thou shalt not muzzle the ox that treadeth out thy corn," thereby clearly intimating not only that no cruelty should be exercised towards him, but that the most indulgent liberality and kindness should be extended to him. Surely funds should be raised publicly or privately to defray any such expences, and laws be enacted to do away such palpable injustice, although the awakened feelings of mankind will perhaps be his surer and better protection hereafter, than laws and statutes which few like the trouble of enforcing.

*Some further Considerations on the Abuse of the Bearing-Rein.*

It seems to be in the ordinations of the great and eternal Disposer of events, that no system should be permanent that has not gentleness, love, and harmony, for its basis and end; a doctrine the Scriptures inculcate, and is confirmed by the daily progress that is making in society, by ameliorations of every kind, leading to such a conclusion. The extinction of slavery, the formation of milder laws, of benevolent institutions, of peace-societies, are all tending towards this happy consummation. And we have it on the best authority, that harsh and rugged Nature herself will finally be subdued and changed; and that the lion shall eat grass as the ox, and lie down with the kid, and the child shall play unhurt on the den of the cockatrice, and that great will be the harmony of those days.

It must be afflicting to every feeling man who can understand it, to observe the gross cruelties practised on these worthy creatures; and which has been confirmed by long habit, till its enormity escapes notice or attention. Whence came the invention of the bearing-rein, I know not, but believe it is not mentioned in any ancient work, and that it is entirely of modern contrivance, heaped upon his other modern inflictions. The best pretence for its use is that it keeps the animal from falling, in which there is some truth; but I should say, what business have we to make a cripple of him, and to bring him into this condition with his feet, and then to punish him on account of it? My friends have found, when their horses were shod properly, and with a shoe that did not pinion the foot, that there was no need of this machine. No animal was ever made a tumble-down by the Almighty, it is man that operates this change in him by his absurd practices.

This instrument is hardly endurable in the hands of the intelligent, but in the hands of the ignorant it is almost constantly abused; it is therefore best removed entirely from their reach. When tightened and strained upon their jaws and lips, it is often more tiresome and painful than the infliction of the whip itself. It can compress, distort, and derange the functions and the very structure also of the air-passages and parts about the throat, and has been the death of many a good horse, without its being at all known or understood as such, and is producing the most painful obstructions and ulcerations in these parts, that without killing may last for life.

It is also worthy of our notice, that if you complain to a carman or coachman that his hook-rein is shamefully tightened, he puts his fingers to it directly and pulls it, to show you it is slack. Now, this sort of trial is no proof whatever of its not being too tight, since the animal is obliged to yield himself and conform to the operation, or severely suffer a worse infliction upon his jaws, and this he will do if pulled ever so tight, in order to mitigate its action. For what would that tightness be, I would ask, when the bones and ligaments were so set and fixed that there could be no longer any motion admitted among them, on being pulled by this vile machine? but on removing this rein you discover at once into what an abominable restraint the neck had been drawn, by the figure it takes on being set at liberty.

I well remember once meeting a man with a heavy load of stone in a cart ascending a hill; he could hardly get along with it, and was continually stopping: I told him the horse would certainly draw it more easily if he had the liberty of his neck; and for once this man condescended to listen to reason; he took off the bearing-rein, and the horse drew it to the top at once with comparative ease,\* and, strange to tell, this man seemed also grateful for the hint.

Its abolition would be the saving of so much unnecessary furniture to purchase and to look after; and it is in a more especial manner that we address our brother veterinarians to discourage it, and to the public everywhere to check as much as possible such individual cases of its abuse as may occur. What occasion, for instance, is there for such idle machinery to horses employed in a heavy waggon, where the fear of running away with their load is not at all urgent, or of their falling, with such a weight to keep them up; and why diminish the power of their draft by taking away the use of their necks and fore legs? Of what use is such a machine to a horse in a dung-cart, where, from the extreme ignorance often of those so employed, we see them the most misapplied. No doubt the collar-maker can find good reason for its use, and so can the farmer's man, who takes in the bill; but many a better could I suggest to the farmer for not listening to these fancies, and for refusing its application. If they be thought ornamental,—mere ornament can be easily supplied, of a better and more innocent description, in various ways. Why also should we throw temptation in the way of these men of the stable to peculation, or to the indulgence of a spirit of abuse and cruelty? For it can be easily shown that all this sort of labour was done before its invention, and quite as well or better, without it.

\* My worthy friend, John Field, jun., of Wigmore street, who has taken considerable interest in these inquiries, informs me he has again and again proved, by careful experiment, that his gig-horse climbs a hill with the bearing-rein removed much easier than with it on; and not only so, but that he did it in less time, and sweated less, when arrived at the top, than when this unnecessary appendage was applied to him, which there can be no reasonable doubt must very much oppose his progress, for who, to induce his horse to go, would pull at the rein?

Their eyes are often seen scintillating and flashing with pain and fury, and turning in their sockets, and retracted and dim with suffusion of blood, from a foolish imagination that their necks, crooked into half their natural compass, look handsome, and where done in a slight degree it may be so, but pushed to the point these men carry it, it becomes a hideous deformity to any man of real good taste, that is as to what should be the easy and natural appearance of the horse's neck, which properly, as the skeleton shows, is nearly a straight line; it is best then to leave it ever free to act, and unconstrained, at least as much so as is required or useful to him in his labours.

This practice of the crooking tag began by a few hackney-coachmen putting the bearing-rein most unnecessarily within the throat-strap, in order to distort it from its proper course, and to make it more severe, as we have before stated; and the collar-makers were not long behindhand in turning this to some account, by making a loop, or tag of leather, to extend from the ears expressly for this purpose of distortion, and variously ornamenting it, for I was witness myself of this being the real way in which the practice at first commenced.

When the rein is drawn backwards, the horse is always instructed to obey it by stopping; or, if further pressed, of going back himself; but here, in this strange contrivance of the hook-rein, he is expected to advance notwithstanding this contrary indication, and though pulled as tight as you please, or as fear or caprice can make it, yet, *bon-gré, malgré*, he is expected to proceed in spite of its effects, and with the same freedom and alacrity as though it was not there. Surely such a contradictory folly is hardly credible, or that an animal could be found to advance under such strong circumstances of contra-indication. But what will not this docile animal do in endeavouring to satisfy and please his master, or what will not the fear of the lash accomplish? although it must at first excite, no doubt, his just indignation by its perplexing effects; and that he bears it, is no proof of his not severely suffering from it.

It was remarked, in a former part of this Essay, that the curb caused the horse to carry his head low; and we are fully disposed to believe that the very first use to which a bearing-rein was ever applied was to counteract this effect, and that afterwards the idea of permanently using it to keep him from falling suggested itself, and induced its continuance, and became indeed its chief object; and getting into general practice, its first intention was entirely lost sight of. For the degrading admission, that his horse was liable to come down, was avoided in every way possible, and by every subterfuge, as derogating too much from the merits of the animal, and as diminishing his value; therefore, this mode of preventing the accident was eagerly caught at, and its nature but little canvassed.

Another miserable effect of this rein is exemplified in the following case, which I was witness to on Holborn hill. A very fine gig horse in a showy gig fell down, in going down the hill, to the very great injury of his knees. I saw the horse trying his utmost to recover himself whilst in the act of falling, and which he certainly would have effected, but his head, neck, and fore-legs were nearly made useless to him, owing to the pinching-up and pulling-in of this bearing-rein, so that he had in fact no room to act!

A loose bearing-rein, like a loose curb, certainly is no very great evil, but the abuse is so inviting and easy, that it is not a fit instrument to be trusted in such hands. And the more so in the total

absence of all schools for instruction in these matters, so that every one has to learn for himself, and perhaps not without first committing some gross act of abuse upon the animal, which awakens him to reflection, and teaches him to avoid it. It is greatly to be regretted that there should not be proper schools for obtaining this very necessary knowledge, and that a testimonial of competency be required before a man might mount the box, or be admitted to handle the animal, or even enter a stable. And such schools, consisting of a barn, or any simple square building, would be sufficient, in every city or large town, where it would create a useful employ, and would effectually suppress most of those enormities which have been but too long suffered to prevail.

#### *On Mounting the Horse.*

HAVING a blank page or two left, instead of their remaining unoccupied, we are led to bestow them on the subject of mounting the horse, although somewhat foreign to our original purpose of the bits. The stirrup, though now become an article of horse furniture of so familiar a kind, that to call it an invention would almost appear strange, yet however was it not known in Xenophon's time, or for five hundred years after; and during this epoch men vaulted into their seat on horseback, at least those who possessed strength and agility enough to do it, without any auxiliary provision, of which we see an actual representation taken from an ancient medalion in the British Museum where the horse, See Pl. II. *fig.* 8, instructed probably so to do, is putting out his fore legs forwards, which lowers his back to the rider, and thus facilitates the operation of mounting; as he is placed however on the contrary side from what is usual, it is clear he must mount by his left leg, for if he threw his right over, it is obvious his face would then be presented to the tail of the animal.

However those who had higher horses to deal with, or who possessed not this agility, mounted by the spear, *ἐπι τοῦ δορατος*, as Xenophon expresses it. One of these spears was found some years back in Athens, concealed behind an old interior wall of a great public building, and is seen represented Pl. II. *fig.* 1, being furnished or provided with a loop of leather on the side, into which the soldier's foot was inserted, when he nimbly vaulted into his seat. One is seen represented in the very act of thus mounting, at *fig.* 7, Pl. II, taken also from an ancient paste or medalion in the British Museum; this man however is placed different to the other on the left or near side of the horse, as in the usual way of mounting.

Besides these means they also had *Upping stocks*, or *stone steps* or *blocks*, for mounting their horses by, placed at convenient distances along the streets and causeways. The great also possessed their lackeys, or slaves, who attended their masters on these occasions, and who, stooping down or kneeling, gave opportunity for them to mount upon their backs. When stirrups became invented, this sort of subserviency was represented by holding the stirrup in the hand for to mount by; and kings, on some occasions formerly, subjected themselves to this degrading ceremony, in thus assisting the Romish popes.

The first representation of a stirrup, that we know of at present, is seen on the Bayreuth Tapestry in the Archæological Society's rooms, supposed of a date a little anterior to William the Conqueror; see Berenger, Pl. VII, *fig.* 2. It was of a very simple figure, being almost a

regular triangle; and this stirrup was fitted to a more than usually solid *ephippium*, indeed nearly resembling our modern saddle but raised before and behind like a pack-saddle, no doubt with a tree and proper iron frame and loop suspending the stirrup; before this, a simple soft housing, or *ephippium*, ill calculated for carrying a stirrup, though sometimes gorgeously ornamented, having been in general use.

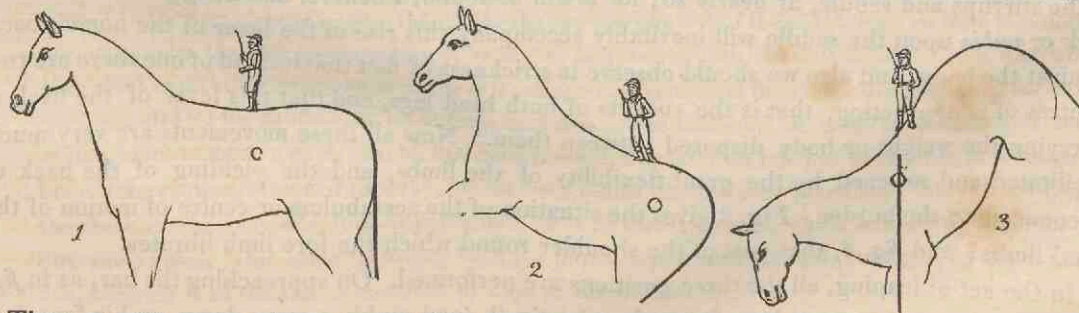
The third ancient cameo, Pl. II. *fig. 6*, is a very curious article; to be seen also in the British Museum, being part of Baron Stosh's Collection; and represents a soldier, as appears by his helmet, in the act of kneeling down to fasten on the *spartum* or broom twig shoe, or which is more probable, the *hippopodes*, or leathern sock of the ancients, often defended with iron, and which probably gave rise to the modern horse-shoe; they fastened it on, not by nails, but by bands round the legs, which he appears to be in the act of grasping in order to its more close application. See Absyrtus's description of this kind of shoe, in *Treatise on the Shoeing of the Ancients, and of the Invention of the Modern Shoe*, second edition, p. 20, where they are actually seen on the legs of three horses. The *spartum* shoe we have remarked was probably only used for keeping on the dressings to the injured or abraded feet, and not used as a defence against the roads. For further particulars we must refer the reader's attention to the above treatise.

On Equitation.

*Verbum.*

WE are again induced to fill a small remaining space of blank paper with a digression, which like the former, is but remotely connected with the subject of bits and biting; and which relates to the seat on horseback after we are mounted. It was written above thirty years ago, while attending the riding-school, and may perhaps, to be perfectly accurate, require further correction. It appeared to me at the time to be the chief principle or groundwork for the seat on horseback, in practising the various changes of attitude required in order to keep a firm seat, whether in his rearing, kicking up behind, or in going over, the leaping-bar.

The successful practice of this art will, we believe, be better understood and entered upon, by first recognizing the foundation of its principles, that of a lever having two centres of motion, either of which is liable to be called into action with a body placed in the centre between them.



Thus we will suppose this lever placed horizontally, which is not however entirely inflexible, but possessing some degree of elasticity, which flexibility though small, will cause the re-action to be less felt by the rider, and to be more pleasant and agreeable than if perfectly rigid, especially where such movements or changes are very sudden.



The art of riding then, or of keeping a firm seat, in its general principle, will consist of this simple axiom, to keep the body always as nearly as possible in a perpendicular attitude to the centre of motion, in whatever posture the horse may assume,—and since he can only take three or at most four positions, they are easily comprehended.

While, for example, the horse is on all-fours, the centre of motion, or rather of gravity then, is in a perpendicular line to the earth between the fore and hind legs, under the seat of the horseman, as seen in *fig. 1*. In the horse rearing up before, the centre of motion becomes transferred to the hind legs, and the acetabulum, or socket of insertion of the thigh-bone in the hanch-bone, becomes the centre of motion. Now it is to be observed that the centre of motion is the part of the body having the least motion of any, and the rider, to be safe, must place himself therefore as nearly as he can in a line with it, by which any great jar, concussion, or projectile force is avoided.

If on the contrary, the horse should lash out very high with his hind legs, supporting himself on his fore, the centre of motion will then be transferred to about the middle of the shoulder-blade, that being the point on which this limb librates, and the rider's body should, to be safe, be disposed in a line with it by throwing his body backwards in order to avoid any violent concussion, or projectile force, which he would infallibly experience in any other attitude.

This principle however, like most general principles, must, we believe, give way to certain modifications; for as these two centres of motion are very high up in the limbs, it is not easy to sit so as for the body to be perfectly opposite to them. Some might contend therefore that the foot fixed on the ground would afford a more proper point to aim at; others again might contend, and which we believe would come nearest to the truth in actual practice, that a line drawn at half-way between these two points would be a more safe and easy approximation to the truth, and would sufficiently secure the seat of the rider. This remark, however, appears to apply more particularly to the hind than to the fore legs, when those are advanced forward under the body, by which the hind quarter or croup is sunk down, and so favours the rider in the application of the rule; and it is necessary further to observe that the body only of the rider, that is down to the very bottom of the loins, is to take this direction, leaving the fork and legs ever fixed and straight in the stirrups and saddle, or nearly so; for it will be found, I believe, that a slight rotation of the fork or *pubis* upon the saddle will inevitably accompany this rise of the lever of the horse's back against the body, and also we should observe in strickness of fact that instead of one there are two centres of motion acting, that is the sockets of both hind legs, and that this lever of the back is carrying the weight or body disposed between them. Now all these movements are very much facilitated and softened by the great flexibility of the limbs, and the yielding of the back to accommodate the burden. *Fig. 2* gives the situation of the acetabulum or centre of motion of the hind limbs; and *fig. 3*, that part of the shoulder round which the fore limb librates.

In the act of leaping, all the three positions are performed. On approaching the bar, as in *fig. 1*; on the horse rising you lean forward as in *fig. 2*, and on his coming down on his fore legs on the opposite side of the bar, you take the position as in *fig. 3*. However, without much attending to the principles of it, the practice of these rules become familiar enough to those who ride standing upon the horse, as at shows and theatrical representations.

When the horse moves sideways, in what is called the *Passage*—the only other motion he is capable of, worth noticing at least,—the centre of motion is then, as when on all-fours, or in going backwards or forwards, in the common line of gravity between the hind and fore legs.

In rearing and plunging you have a quick succession or transfer of these centres of motion, making the seat difficult, which though in time and practice you learn to adjust yourself to, you will certainly accomplish it more certainly, and in less time, by previously understanding the principle of doing it. For it must be evident if a man sit in any other direction than the one prescribed, he will be thrown by the laws of projectiles immediately from his seat to the ground. The first motion, that of leaning forwards in proportion as the horse rises, is almost natural and instinctive, but the other, that of leaning backwards, is acquired with more difficulty, and has cost many a tumble.

### ADDENDA ET CORRIGENDA.

- Page 8, line 28, after true, *ins.* The famous Greek poet Pindar however, ascribes the invention of horse-educating to two of their fictitious deities, viz. Prometheus and Mercury, the latter an acknowledged king of pilferers, or their deity rather, and the other it may be suspected was not very much better, perhaps coined for the purpose of more conveniently robbing the poor Egyptians of the honors of their invention, for they undoubtedly first instituted these arts.
- P. 8, l. 40, note, after *equus*, insert, And we have proof of its having been very anciently written by the Romans with an *o*, *Equos*, which remarkably serves to confirm the above etymon, but not reducible to any declension in this state, it was made into *equus* with the nouns in *us*, of the second.
- P. 12, l. 2, after chin, *ins.* and therefore did not use one.
- P. 12, l. 9, after Xenophon, *ins.* *πρωτον μεν τοινην του ρυταγωγια χρη εκ της υποχαλιιδιας, η εκ του ψαλιου ηρτημενον ευτρεπη εις την αριστεραν χειρα λαβειν.* Hippike. Ed. Leunclavii, p. 942; meaning, as I suppose, "In the first place then (do) thus; take the leading rein out of the cheek-ring, or from the *psalion*, or chain under the chin,—extending it ready to be received into the left hand." It is also pretty clear, that as no other bits or reins are here mentioned by Xenophon than this *rutagoge* or leading rein, it was used also for the hands after mounting, and that it was therefore, it is fair to conclude, a simple snaffle, which to make a guide rein of, had been crossed, that is the off rein had been brought through the loop of the *psalion*, or one of its links, or, as our grooms do, as formerly noticed, through the ring at the cheek on the near side, thus bringing both reins to the same side, which sufficiently explains the directions given. Our modern cavalry have the piquet rein a distinct rein, coiling it up when not in use, hanging it to the side of the head or front of the saddle.
- P. 13, l. 6, after conjoined, *ins.* these are all perhaps from the Latin verb, *teneo*, to hold, a root probably of eastern origin in both languages, which has been found of late to be very extensively the case, viz. from the Sanscrit.—Also *μας—αντος* appears to have been much used by Homer, and was therefore a very ancient appellation for the reins.

- P. 13, l. 19, after error, *ins.* Although I since observe Leunclavius has it also, "*ima pars fræni.*" See p. 942. Hence also in the English translation of Xenophon's *Hippike*, which is understood to have been done by Governor Pownall, 8vo. London, 1802, the same expression appears, "fastened to the lower part of the bit," which is quite unintelligible; neither was it "fastened" to the psalion or chain, but simply hooked to it by one of its links, or suspended by a small ring, hanging probably from about its middle part, under the chin.
- P. 13, l. 24, after been, *ins.* I apprehend that an actual representation of this ancient article may be seen on the mouth of one of the horses very distinctly given in Menetrius's Illustrations of the *Columna Theodosiana*, see Tab. I., in a solemn procession. It consists of an iron muzzle, made of numerous straps of plate-iron, crossing each other at right angles, and apparently forming a sort of basket for the nose, though it is obvious it might have been very variously made, both as to material and form, as of twigs or hemp; it agrees also well with the ancient account of it. *φίμοι* enim os claudebant, erantque craticulatim ex funiculis viminibusque, plexi sacculi *corbesve*, quos vocabant *fiscellas* Latini, Græci aliàs *κημους*, Scheffer, p. 181. Sometimes it was only a mere band round the nose, to prevent their opening the mouth.
- Ibid. l. 28, after it, *ins.* Sheffer had at one time nearly seen the true state of the case, but afterwards obscures the subject again in mistaking the long piece of iron, which he calls "*ferramentum longius ab ore dependens*," seen extending from the warriors bit, Pl. II, *fig. 3*, for the *upochalynidia*, instead of giving for it the *annulus*, still nearer the mouth, and out of which it might conveniently be taken, but certainly not out of this solid iron branch, see Lib. I. p. 173; the above branch we shall have occasion to revert to hereafter, and to consider more attentively. It would have been uncouth in its effect if so applied, and there is also evidently no provision for it.
- P. 16, l. 38, after us, *ins.* This was accomplished perhaps by a ring or upochal passing through these perforations, which hanging loose received the reins, and also the headstal and chain or psalion, under the chin; or there might have been two rings for this and the foregoing purposes, as in the former bit; or, a cheekloop alone for the headstal, as in the former bit.
- P. 17, l. 30, after ornament, *ins.* See *fig. 4*.
- P. 19, l. 6, after artificers, *ins.* or finally it is possible that this exterior collar or prominent rim, had a screw on its internal surface, and that the metal plate being made thin at its outer edge, was screwed into it, urged by a square key fitting the above notch.
- P. 19, l. 14, after centuries after, *ins.* The last remark we shall make on the Herculaneum bit is, that the cheekpiece for the headstal, &c., being formed into a square, only wanted a tongue to constitute the modern buckle, of which it might have been the progenitor, at least if such was not then known, of which I am not assured. And with that accession it would make a very near approach to our modern furniture in this one respect, while the rude cross-pieces in the bit from Silbury Hill would make a nearer approach to it in another respect.
- P. 21, l. 38, after simplest bits, *ins.* of horn or wood.
- P. 23, l. 22, after a word, *ins.* for what we absurdly call the bridon they call the *fausse rein*, our snaffle being their proper bridon; so that a man riding with a curb and snaffle exhibits at once the bride and bridon of the French. Without presuming at all to dictate, however, I may just observe, that in order to avoid all confusion and ambiguity, if the French were to use the terms *bride*, *bridon*, *bridonette*, and *fausse rein*, then our parallel or strictly synonymous terms to them would be, *curb*, *snaffle*, *snafflette*, *hook rein* or *bearing rein*. Snafflette being used in this case to signify the short

reined military snaffle lying on the horse's neck in ancient armour, as seen in Pl. II, *fig.* 2, 3. We should then have a distinguishing term for each of these bridles ourselves, and an intelligible harmony or synonym and concord between us and the nations of the continent.

P. 27, l. 19, for bits, *read* branches.

P. 31, l. 22, note, after obtained, *ins.* As words are the signs of ideas and of things also, by which we are to think and reason, so is it of essential consequence that as a basis they should be correct or the superstructure may suffer. I may here once for all just advert to my often indulging in philological remarks where the matter seemed to call for it and were, I believed, not generally understood; when thus impelled I have done it in the briefest manner and smallest compass of words that I could devise so as not materially to enlarge the work by them. On this occasion there seems a call as I apprehend for this sort of interference in respect to the two words *curb* and *kirb*; obviously distinct and from different sources yet confounded generally as the same or rather one is made to occupy the place of both. It is in fact the Norman French which has in many cases rode over and confounded our Saxon words of similar sound. Now the French word, *courbe*, signifies any thing that is curved, bowed out or with an arched outline, from the Latin, *curvus*, signifying the same thing, and is very duly and properly applied in the disease of the hock of the horse, where the parts from strain and violence have suffered, become swollen and callosed. But the word *kirb* which is of Saxon origin and a most proper and useful English word, signifying quite a different thing, *viz.* restraint, or the retention of any thing in its place, as the *kirb-stone*, *kirbing* the passions, &c. and is generally written *curb*, although a very distinct word and the *k*, should by rights we believe be used on this occasion. Our great lexicographer Dr. Johnson seems to confound them as one, giving absurdly both the senses though perfectly opposite, to the same word, I therefore just give a hint here at this perplexity. If any should be tenacious of still retaining the *c* and rejecting the *k*, they might distinguish the two words by spelling one with the French, *courb*, and the other, *curb*, for assuredly they have no relationship in origin, sense, or meaning.

P. 34, note, line 2, after intended, *ins.* for how can anything be made "fresh and cool" by being sawed and punished.

P. 53, l. 16, after rollers, *ins.* blinkers, brass bosses.

